

HIWIN®

Linear Motor System

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*The specifications in this catalog are subject to change without notification.

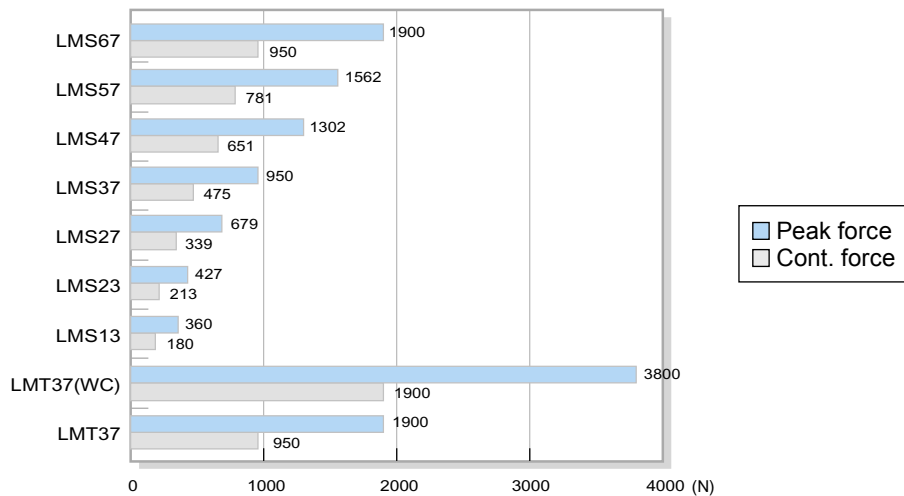
1. Linear Motor Series

1-1 Linear Synchronous Motors

Force Lineup

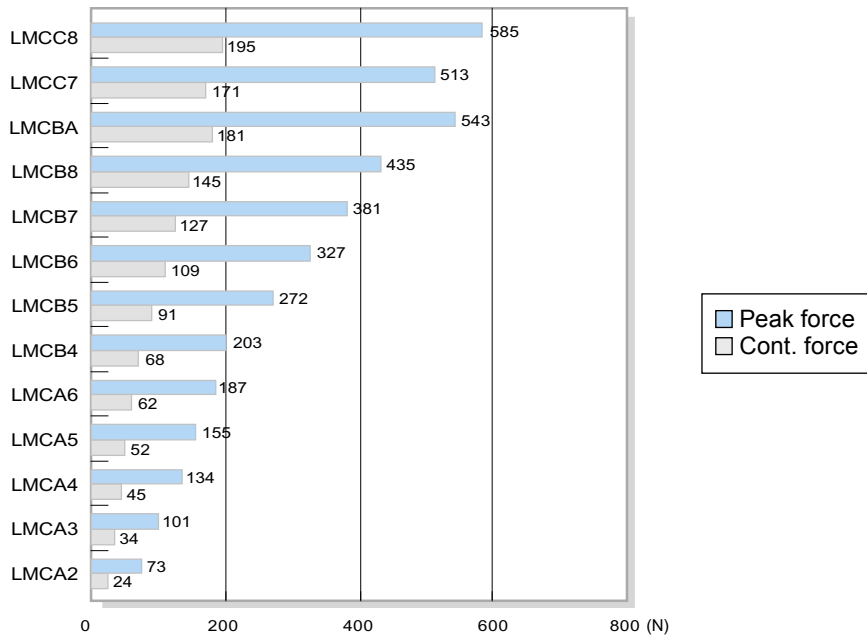
- LMS (Iron-Core Type)

Features: Big force, Low cogging



- LMC (Coreless Type)

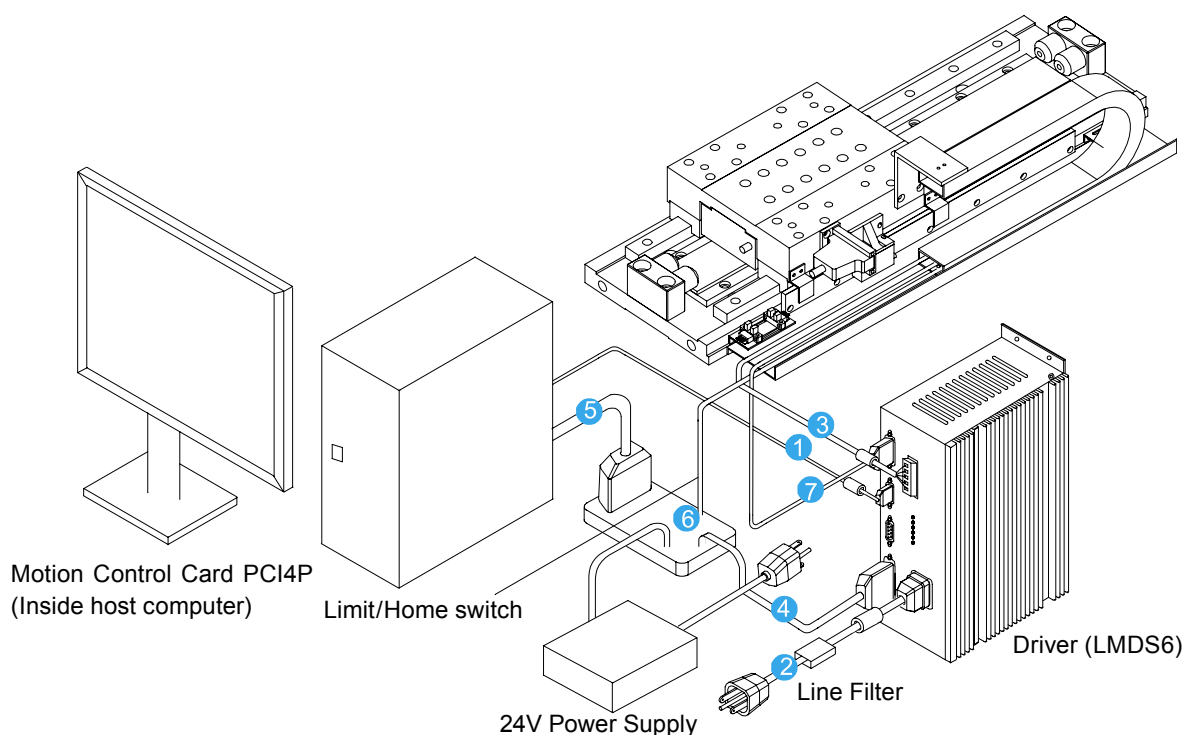
Features: Small inertia, High acceleration, No cogging



1-1-1 System Configuration

● Single Axis Example

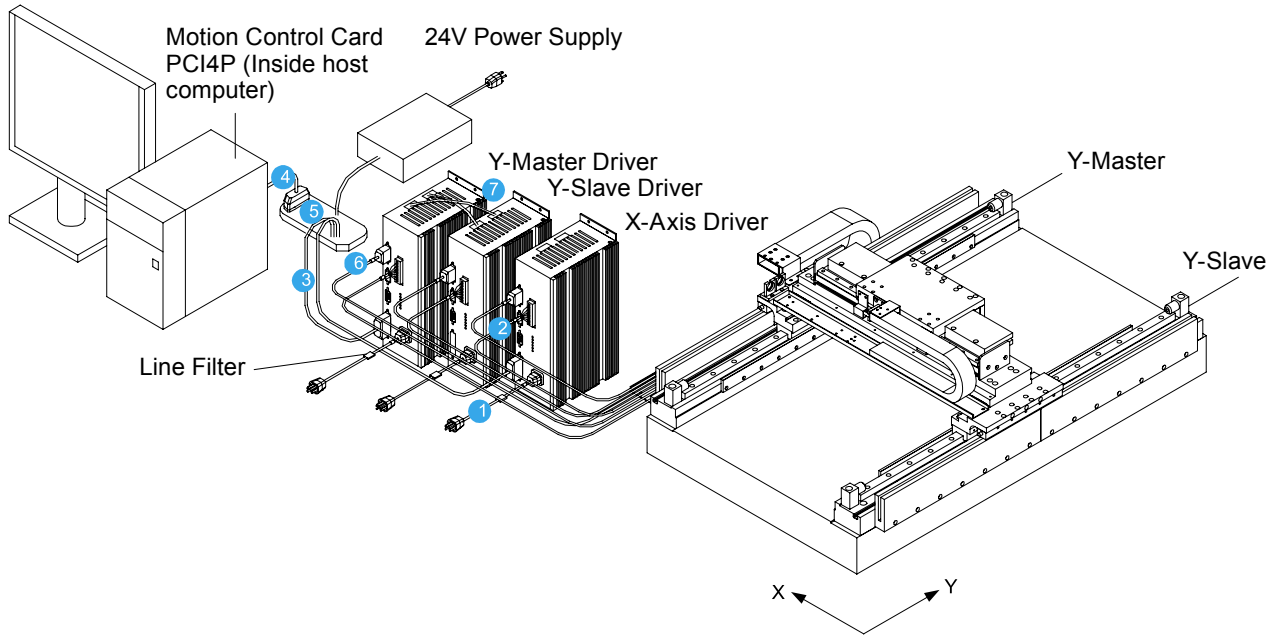
Iron-core Linear Motor LMS



- ① RS-232 Cable (LMACR20A)
- ② Driver Power Cable (LMACP20B / LMACP20H / LMACP20F / LMACP20G)
- ③ Motor Cable
- ④ Pulse cable (driver end)(LMACK20G)
- ⑤ Pulse cable (controller end)(LMACK20M)
- ⑥ Terminal block (PCI4P-TB)
- ⑦ Encoder Cable (e.g., Renishaw)

● Gantry Example

Coreless Linear Motor LMC

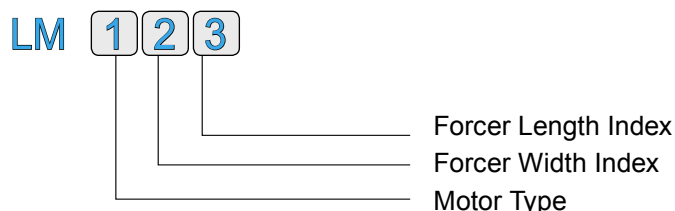


Note: Pulse cable is connected only to master driver, not slave.

- ① Driver Power Cable (LMACP20B / LMACP20H / LMACP20F / LMACP20G) x 3
- ② Motor Cable x 3
- ③ Pulse cable (driver end)(LMACK20G) x 2
- ④ Pulse cable (controller end)(LMACK20M) x 1
- ⑤ Terminal block (PCI4P-TB) x 1
- ⑥ Encoder Cable x 3
- ⑦ Link In/Out Cable (LMACK02K) x 2

1-1-2 Part Numbers

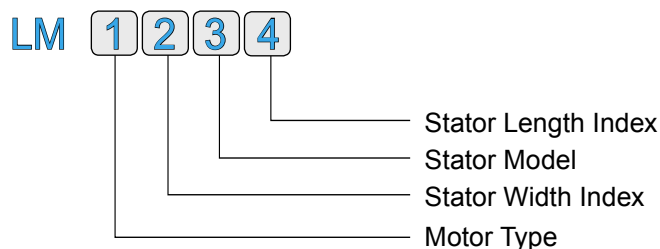
• Forcer



1	Motor Type	S / C / T / B	S: Iron-Core Motor C: Coreless Motor T: Attraction force canceling Iron-Core Motor B: Low profile Iron-Core Motor
2	Forcer Width Index	1 / 2 / 3 / 4 / 5 / 6 A / B / C / D	1/A: with 30 mm permanent magnet track 2/B: with 50 mm permanent magnet track 3/C: with 70 mm permanent magnet track 4/D: with 100 mm permanent magnet track 5: with 120 mm permanent magnet track 6: with 140 mm permanent magnet track
3	Forcer Length Index	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / A	See Specifications

Example: LMS37

• Stator



1	Motor Type	S / C / B	S: Iron-Core Motor (LMS, LMT) C: Coreless Motor (LMC) B: Low profile Iron-Core Motor
2	Stator Width Index	1 / 2 / 3 / 4 / 5 / 6 A / B / C / D	1/A: with 30 mm permanent magnet track 2/B: with 50 mm permanent magnet track 3/C: with 70 mm permanent magnet track 4/D: with 100 mm permanent magnet track 5: with 120 mm permanent magnet track 6: with 140 mm permanent magnet track
3	Stator Model	S / C	S: Standard C: Customized
4	Stator Length Index	1 / 2 / 3 / 4 / 5 / 6	1: 192mm(32 x 6) 4: 384mm(32 x 12) 2: 256mm(32 x 8) 5: 448mm(32 x 14) 3: 320mm(32 x 10) 6: 512mm(32 x 16) (Not for LMB series)

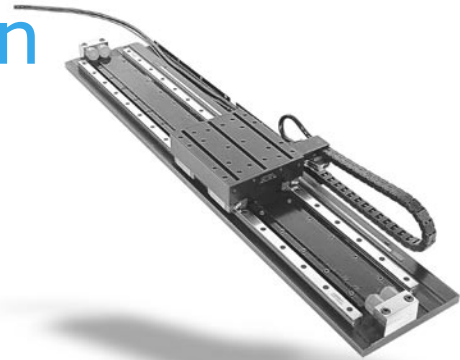
Example: LMCAS5, LMS3S6

1-1-3 LMS Specification

Iron-Core Type

Features:

- Large thrust and high acceleration
- Low cogging force



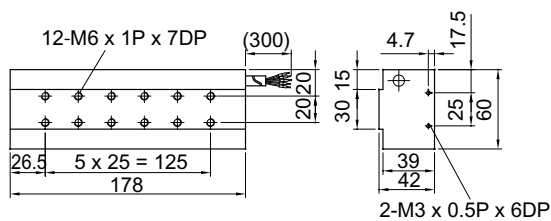
Item	Symbol	Unit	LMS67	LMS67L	LMS57	LMS57L	LMS47	LMS47L	LMS37	LMS37L	LMS27	LMS23	LMS13	
Continuous force	F_c	N	950		781		651		475		339	213	180	
Continuous current	I_c	A(rms)	3.5	7.0	3.5	7.0	3.5	7.0	3.5	7.0	3.5	3.5	4.1	
Peak force(1s)	F_p	N	1900		1562		1302		950		679	427	360	
Peak current(1s)	I_p	A(rms)	7.0	14.0	7.0	14.0	7.0	14.0	7.0	14.0	7.0	7.0	8.2	
Force constant	K_f	N/A	271	136	223	112	186	96	136	68	97	61	44	
Attractive force	F_a	N	5700		4885		4071		2850		2036	1350	805	
Max. coil temperature	T_{max}	°C	100											
Phase no.	Φ	Φ	3											
Mass of forcer	M_f	kg	10.8		9.4		8.0		5.9		4.1	2.7	1.8	
Unit mass of stator	M_s	kg/m	15.9		13.7		11.5		8.2		6.2	6.2	4.2	
Electrical time constant	K_e	ms	11.3		11.2		11.1		10.8		10.8	11.4	9.8	
Resistance(25°C) (per phase)	R_{25}	Ω	7.4	1.9	6.5	1.6	5.6	1.3	4.3	1.0	3.1	2.3	1.7	
Inductance (per phase)	L	mH	84	21	73	18	62	15	45	10	32	55	33	
Width of stator	W_s	mm	170		150		130		100		80	80	60	
Length of stator	L_s	mm	192/256/320/384/448/512											
Stator fixture distance	A_s	mm	155		135		115		85		65	65	45	
Assembly position	H	mm	57.4		57.4		57.4		57.4		57.4	55.2	55.2	
Pole pitch	2τ	mm	32											
Bend radius of motor cable	R_{bend}	mm	40					37.5						
Back emf constant	K_v	Vrms/ (m/s)	141	71	121	61	101	59	71	41	51	43	26	
Motor constant (25°C)	K_m	N/ \sqrt{W}	57.6		50.7		45.4		38.0		31.8	23.1	19.4	
Thermal resistance	R_{th}	°C/W	0.23		0.26		0.30		0.40		0.46	0.33	0.33	
Thermal Switch	100°C, Snap action, PTC ⁽²⁾ ; DC12V/6A, DC24V/3A													

(1)Values in the table are according to no forced cooling

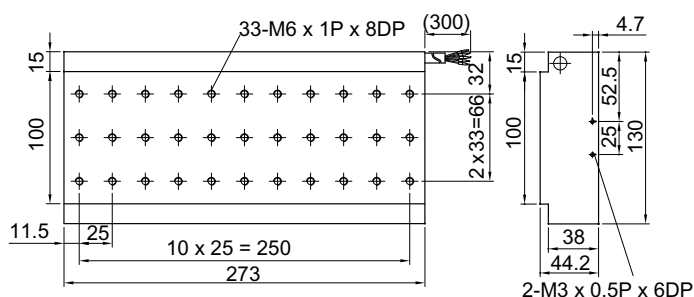
(2)PTC: Positive Temperature Coefficient

LMS Dimensions

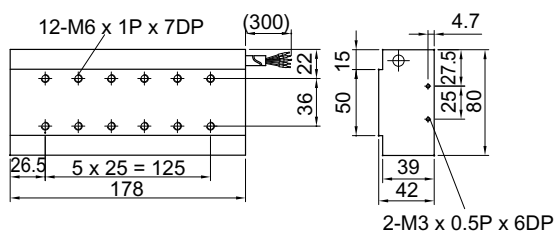
Forcer (LMS13)



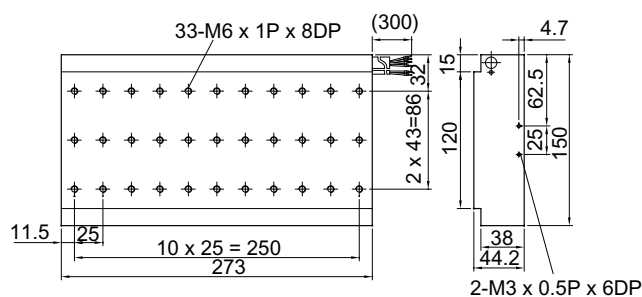
Forcer (LMS47)



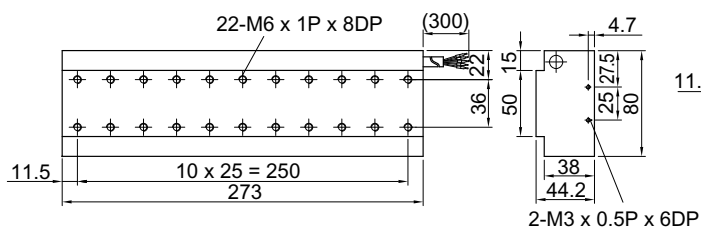
Forcer (LMS23)



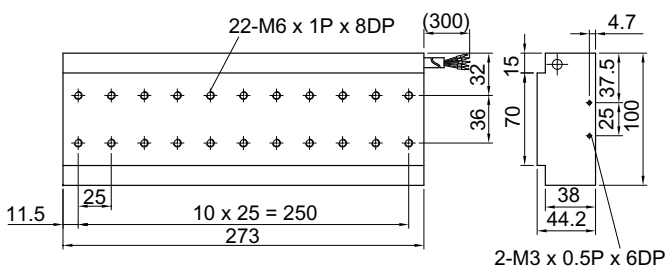
Forcer (LMS57)



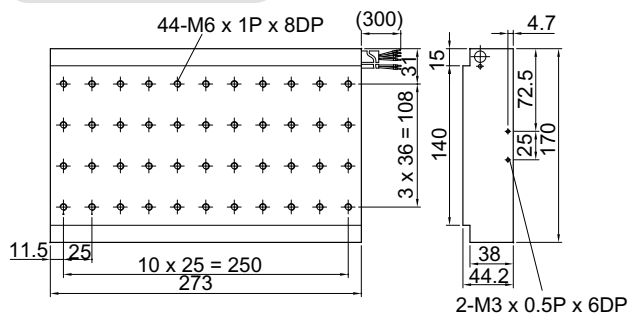
Forcer (LMS27)



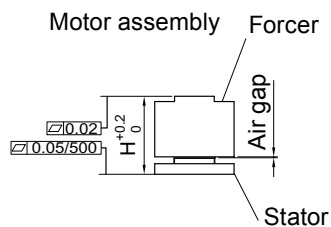
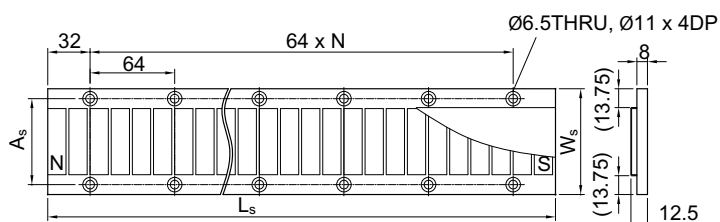
Forcer (LMS37)



Forcer (LMS67)



Stator

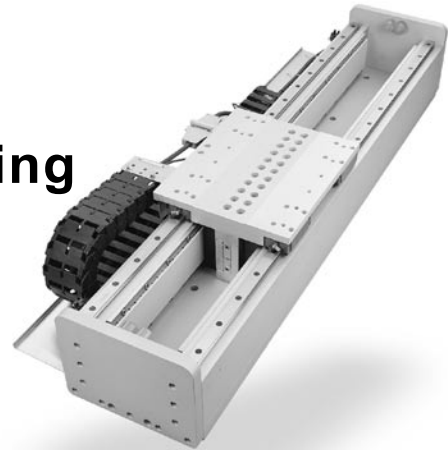


1-1-4 LMT Specification

Attractive force cancelling Iron-Core Type

Features:

- Large force constant
- Small friction force
- Longer guide way life



Item	Symbol	Unit	LMT37(WC) ⁽²⁾	LMT37	LMT37L
Continuous force	F_c	N	1900	950	
Continuous current	I_c	A(rms)	7.0	3.5	7.0
Peak force(1s)	F_p	N	3800	1900	
Peak current(1s)	I_p	A(rms)	14.0	7.0	14.0
Force constant	K_f	N/A	271	271	136
Attractive force	F_a	N	0 ⁽¹⁾		
Max. coil temperature	T_{max}	°C	100		
Phase no.	Φ	Φ	3		
Mass of forcer	M_f	kg	14.0		
Unit mass of stator	M_s	kg/m	16.4		
Electrical time constant	K_e	ms	9.6		
Resistance(25°C) (per phase)	R_{25}	Ω	9.0	2.3	
Inductance (per phase)	L	mH	86	22	
Width of stator ⁽⁴⁾	W_s	mm	100		
Length of stator ⁽⁴⁾	L_s	mm	192/256/320/384/448/512		
Stator fixture distance ⁽⁴⁾	A_s	mm	85		
Assembly position	H	mm	131.5		
Pole pitch	2τ	mm	32		
Bend radius of motor cable	R_{bend}	mm	37.5		
Back emf constant	K_v	Vrms/(m/s)	141	71	
Motor constant(25°C)	K_m	N/\sqrt{W}	52.2	54.1	
Thermal resistance	R_{th}	°C/W	0.053	0.23	
Thermal Switch	100°C, Snap action, PTC ⁽³⁾ ; DC12V/6A, DC24V/3A				

(1) 0: Counter balanced by equal attractive force

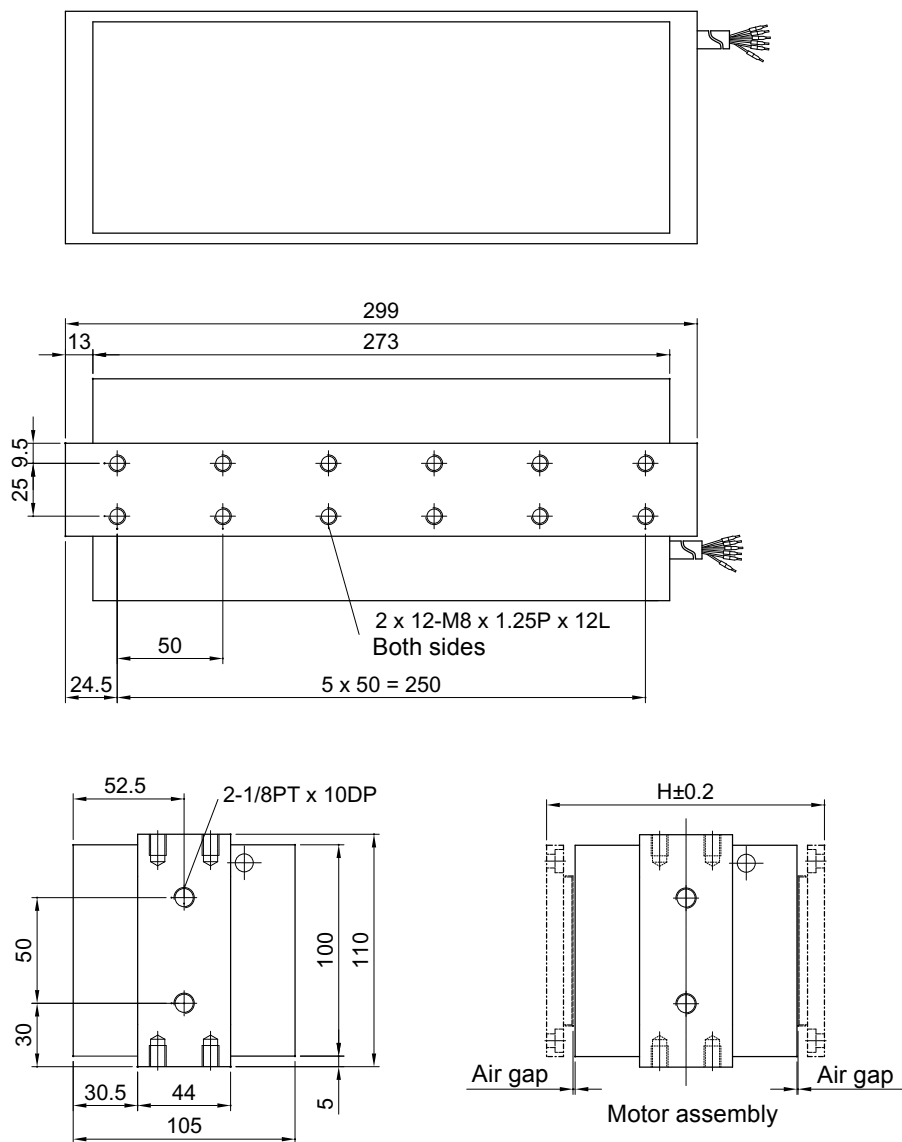
(2) Values in the table are according to no forced cooling except labelled with WC (Water Cooling)

(3) PTC: Positive Temperature Coefficient

(4) Refer to dimension of LMS stator

• LMT Dimensions

Forcer (LMT37)



Stator same as LMS37

1-1-5 LMC Specification

Coreless Type

Features:

- Smooth motion and low velocity ripple
- Small inertia and high acceleration
- Low profile
- No cogging

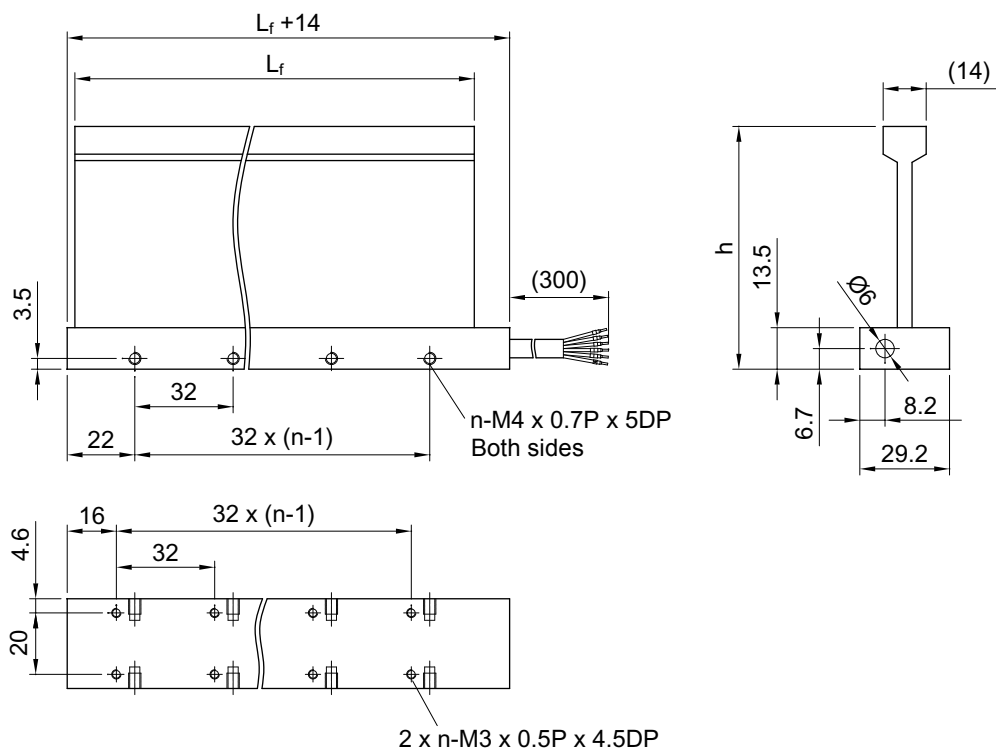


Item	Symbol	Unit	LMCC8	LMCC7	LMCBA	LMCB8	LMCB7	LMCB6	LMCB5	LMCB4	LMCA6	LMCA5	LMCA4	LMCA3	LMCA2	
Continuous force	F_c	N	195	171	181	145	127	109	91	68	62	52	45	34	24	
Continuous current	I_c	A(rms)	2									1.8	1.8	2.1	2.1	2.3
Peak force(1s)	F_p	N	585	513	543	435	381	327	272	203	187	155	134	101	73	
Peak current(1s)	I_p	A(rms)	6									5.4	5.4	6.3	6.3	6.9
Force constant	K_f	N/A	97.5	85.4	90.6	72.5	63.5	54.5	45.4	32.5	33.8	28.2	21.2	15.8	10.6	
Max. coil temperature	T_{max}	°C	100													
Phase no.	Φ	Φ	3													
Mass of forcer	M_f	kg	0.76	0.74	0.88	0.72	0.68	0.58	0.48	0.38	0.45	0.38	0.31	0.23	0.15	
Unit mass of stator	M_s	kg/m	21			12					7					
Electrical time constant	K_e	ms	1.0	1.0	0.8	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	
Resistance(25°C) (per phase)	R_{25}	Ω	9.6	8.4	10.4	8.3	7.3	6.7	5.2	4.1	4.0	3.5	3.0	2.4	1.7	
Inductance (per phase)	L	mH	9.6	8.4	7.9	6.3	5.5	4.4	3.9	2.6	2.8	2.4	2.2	1.7	1.3	
Length of forcer	L_f	mm	258	226	290	258	226	194	162	130	194	162	130	98	66	
Height of forcer	h	mm	99			79					59					
Height of stator	H_s	mm	103			80					60					
Width of stator	W_s	mm	35.2			31.2										
Length of stator	L_s	mm	192/256/320/384/448/512													
Assembly position	H	mm	117.5			94.5					74.5					
Pole pitch	2τ	mm	32													
Bend radius of motor cable	R_{bend}	mm	37.5													
Back emf constant	K_v	$V_{rms}/(m/s)$	51.9	45.4	50.0	40.0	34.7	29.3	24.8	19.0	17.4	14.5	11.9	8.8	5.9	
Motor constant (25°C)	K_m	N/\sqrt{W}	18.1	17.0	16.2	14.5	13.7	12.5	11.4	9.3	9.8	8.7	6.9	6.0	4.8	
Thermal resistance	R_{th}	°C/W	0.49	0.56	0.45	0.57	0.65	0.80	0.92	1.18	1.51	1.48	1.32	1.77	2.25	
Thermal Switch	100°C, Snap action, PTC ⁽²⁾ ; DC12V/6A, DC24V/3A															

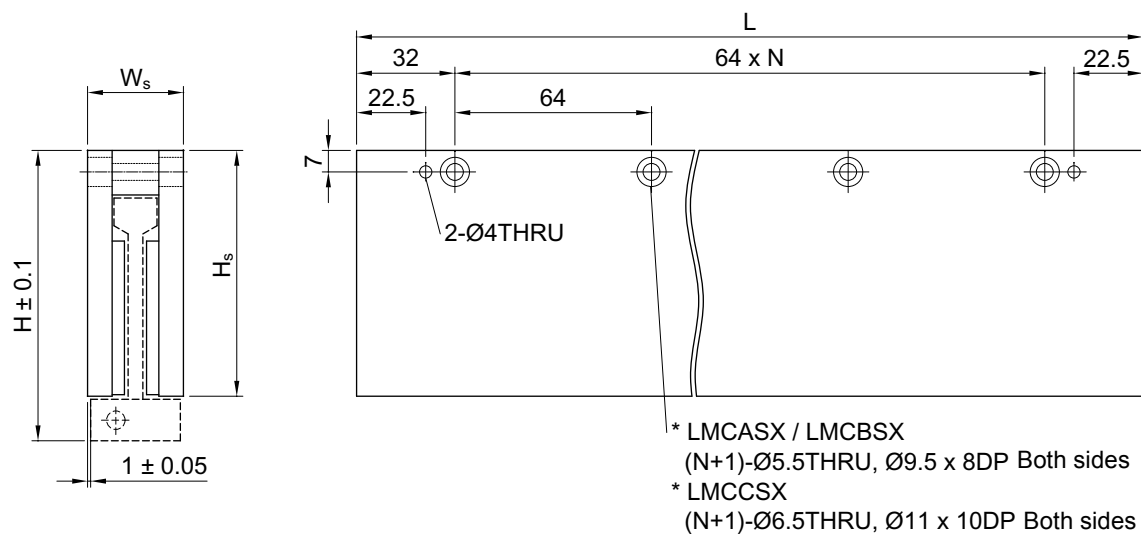
(1) Values in the table are according to no forced cooling
 (2) PTC: Positive Temperature Coefficient

• LMC Dimensions

Forcer



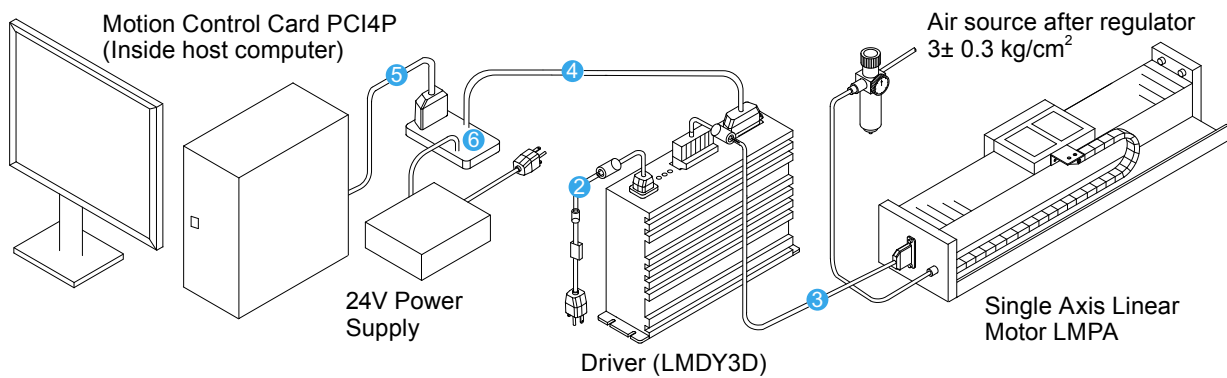
Stator



1-2 Linear Stepping Motors

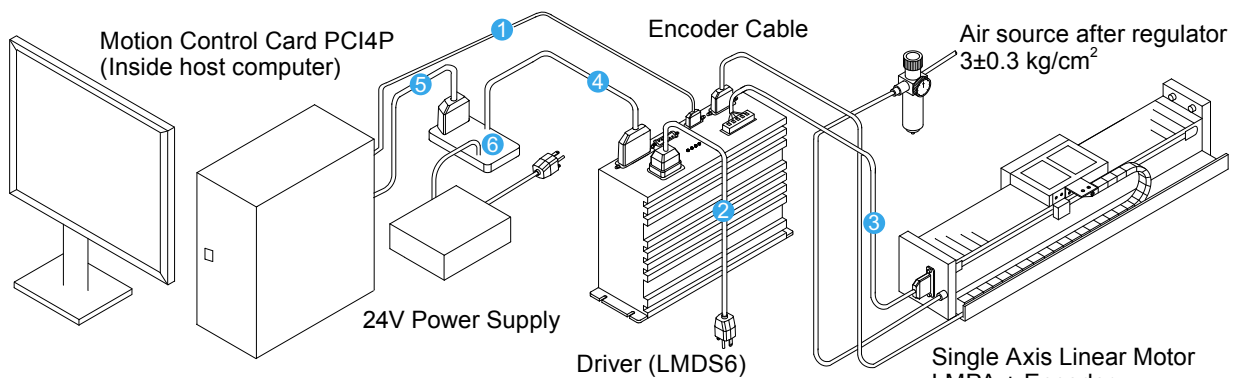
1-2-1 System Configuration

Open-loop Control of Single Axis Stepping Motor LMPA (Also Applicable to LMPR)



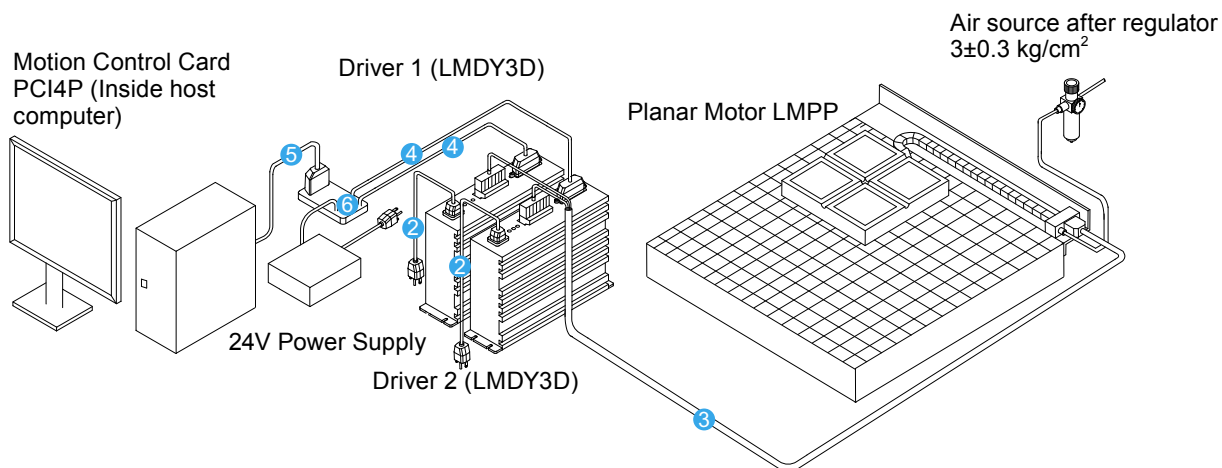
- ② Driver Power Cable
- ③ Motor Cable
- ④ Pulse Cable (driver end)
- ⑤ Pulse Cable (controller end)
- ⑥ Terminal Block

Closed-loop Control of Single Axis Stepping Motor LMPA



- ① RS-232 Cable
- ② Driver Power Cable
- ③ Motor Cable
- ④ Pulse Cable (driver end)
- ⑤ Pulse Cable (controller end)
- ⑥ Terminal Block

Open-loop Control of Planar Stepping Motor LMPP



- ② Driver Power Cable
- ③ Motor Cable
- ④ Pulse Cable (driver end)
- ⑤ Pulse Cable (controller end)
- ⑥ Terminal Block

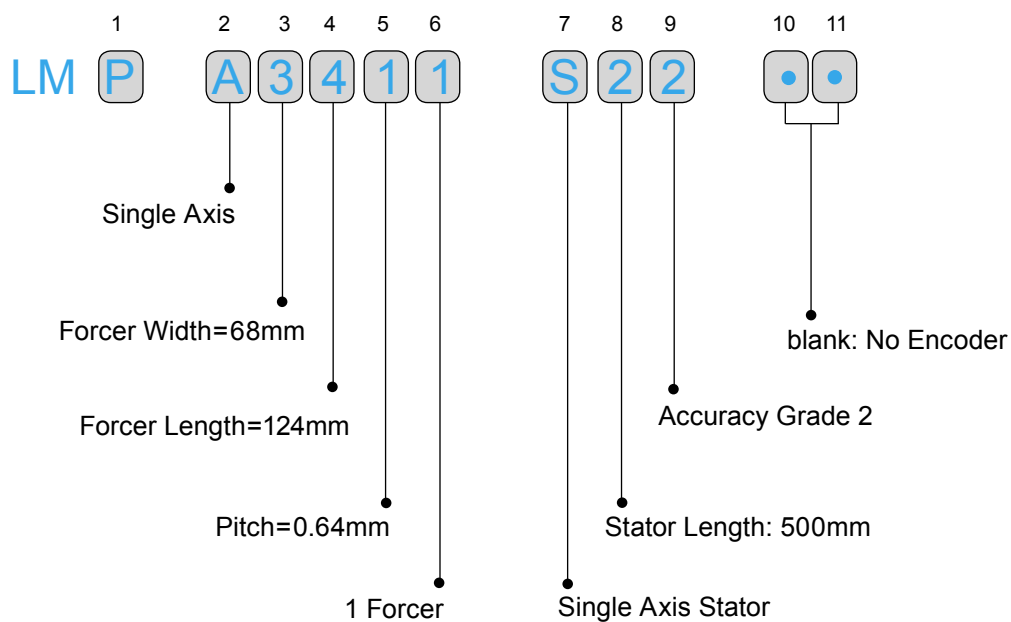
1-2-2 Part Number

- Linear Stepping Motor



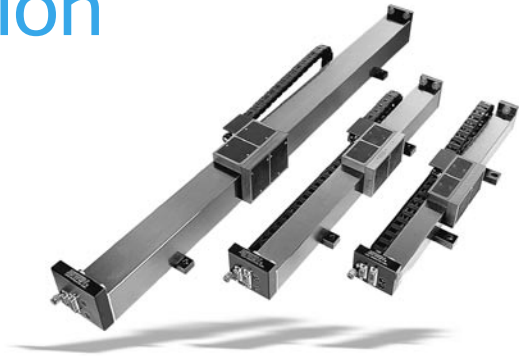
Category	No.	Symbol	Description
I Motor Type	1	P	Stepping
II Forcer	2	Model A / R / P / C	A: Single Axis R: Rotary P: Planar C: Customized Dimension (See the Specifications)
	3	Width Index 1 / 2 / 3 / 4 / 5 / 6 / 7	
	4	Length Index 2 / 4 / 6 / 8 / C	E.g.: A34-Wf=68mm, Lf=124mm P54-Wf=131mm, Lf=138mm
	5	Mechanical Pitch 1 / 2	1 : 0.64mm 2 : 1.28mm
	6	Number of Forcers 1 / 2 / 3 / 4 /	1 : 1 Piece 2 : 2 Pieces 3 : 3 Pieces 4 : 4 Pieces etc.
III Stator	7	Model S / P / Q / R / C	S : Single Axis P : Planar Q : Planar with Home Sensor R : Rotary C : Customized Dimension (See the Specifications)
	8	Dimension Index 1 / 2 / 3 / 4 / 5 / 6 / C	
	9	Accuracy Grade (300mm travel) 2/1	2 : ±0.02mm (LMDY3D) 1 : ±0.005mm (LMDS6+Optical Encoder)
IV Encoder	10	E	E2 : Renishaw RGH41B (blank) : No Encoder
	11	2	

● LMP Part Number Example



1-2-3 LMPA Specification

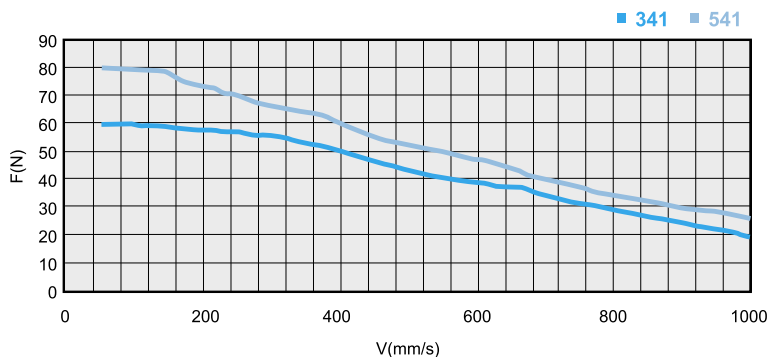
Single Axis



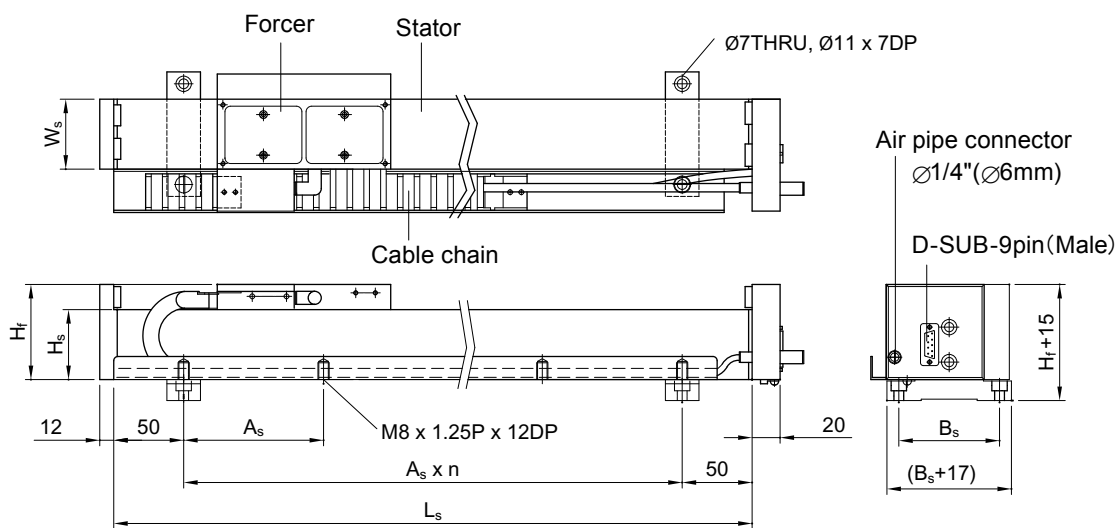
Spec	Type			LMPA 341/342	LMPA 541/542
	Item	Symbol	Unit		
*PERFORMANCE	Max. Thrust	T_m	N	60	80
	Holding Force	T_s	N	70	100
	Resolution	R_s	mm/stp	0.001~0.01	0.001~0.01
	Repeatability	R_p	mm	0.002	0.002
	Accuracy	A_c	mm	$\pm(0.005\sim0.04)$	$\pm(0.005\sim0.04)$
	Max. Vel.	V	m/s	1.5	1.5
	Max. Acc.	A	m/s^2	20	20
FORCER	Phase	Φ	Φ	2	2
	Current	I	A	3	3
	Mech. Pitch	P_t	mm	0.64/1.28	0.64/1.28
	Length	L_f	mm	124	124
	Width	W_f	mm	68	83
	Height	H_f	mm	68	83
	Air Gap	T_a	mm	0.015	0.015
	Air Pressure	P_a	kg/cm^2	3.0 ± 0.3	3.0 ± 0.3
	Air Flow	F_a	ℓ/min	8	9
	Mass	M_f	kg	0.65	0.8
	Op. Temp.	T	$^{\circ}C$	0~50	0~50
	Fix. Distance	$A_f \times B_f$	mm \times mm	116 \times 42	116 \times 57
	Fix. Distance	$A_f \times C_f$	mm \times mm	116 \times 60	116 \times 75
STATOR	Length	L_s	mm	300~1000	300~1000
	Width	W_s	mm	50	65
	Height	H_s	mm	50	65
	Specific Mass	M_s	kg/m	12	15
	Fix. Distance	$A_s \times B_s$	mm \times mm	100 \times 72	100 \times 87

* The performance specifications may vary with different drivers and their setting, therefore, the listed values are for reference only. If higher performance is required, please contact with HIWIN or our authorized agents.

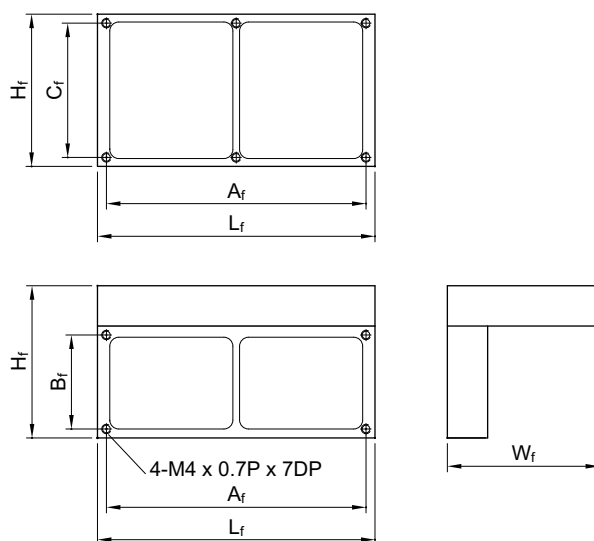
LMPA Force-Velocity Curve



LMPA Dimensions



Details of forcer



Stator Index	S1	S2	S3	S4
Stator Length L_s (mm)	300	500	700	1000
Max. Stroke (mm) (One Forcer)	160	360	560	860

1-2-4 LMPR Specification

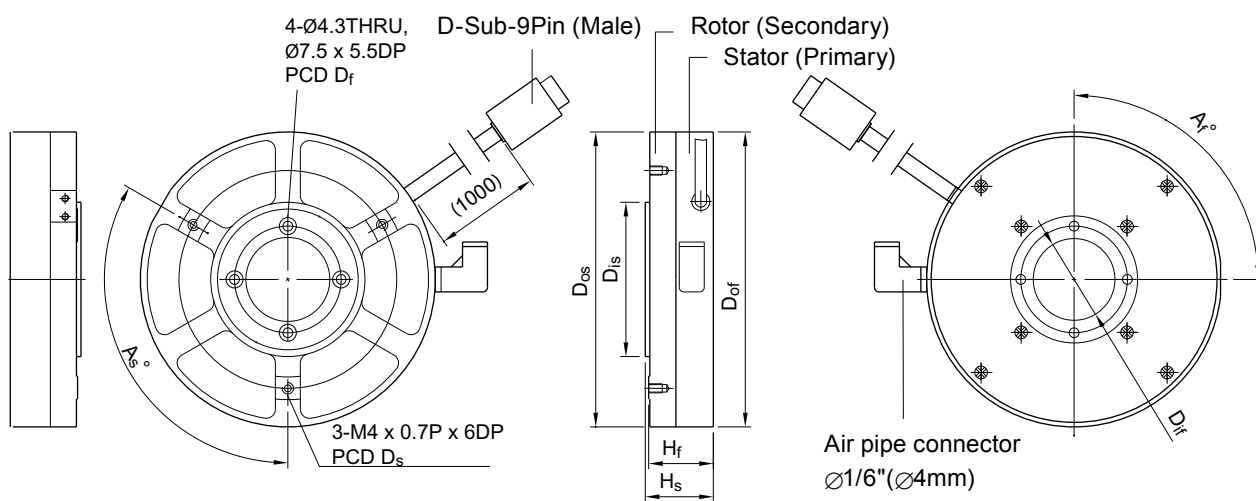
Rotary



Spec			Type	LMPR181
	Item	Symbol	Unit	
* PERFORMANCE	Max. Torque	T_m	N-m	1.0
	Holding Torque	T_s	N-m	1.36
	Resolution	R_s	deg./stp	0.01
	Repeatability	R_p	deg.	0.01
	Accuracy	A_c	deg.	± 0.02
	Max. Angular Vel.	ω	rad/s	14
	Max. Angular Acc.	α	rad/s ²	1030
STATOR (PRIMARY)	Phase	Φ	Φ	2
	Max. Current	I	A	3
	Mech. Pitch	P_t	deg.	1
	Inner Diameter	D_{if}	mm	$36^{+0.030}_0$
	Outer Diameter	D_{of}	mm	130
	Air Gap	T_a	mm	0.015
	Air Pressure	P_a	kg/cm ²	2.3 ± 0.3
	Air Flow	F_a	ℓ/min	7
	Mass	M_f	kg	0.4
	Op. Temp.	T	°C	0~45
	Fix. Distance	$A_f \times D_f$	deg. x mm	90 x 47
ROTOR	Inner Diameter	D_{is}	mm	$68^{0}_{-0.030}$
	Outer Diameter	D_{os}	mm	130
	Height	H_s	mm	30
	Fix Height	H_f	mm	28.5
	Mass	M_s	kg	0.35
	Fix. Distance	$A_s \times D_s$	deg. x mm	120 x 96

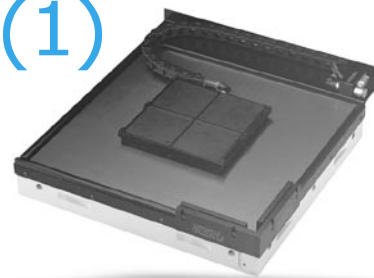
*The performance specifications may vary with different drivers and their setting, therefore, the listed values are for reference only. If higher performance is required, please contact with HIWIN or our authorized agents.

• LMPR Dimensions



1-2-5 LMPP Specification(1)

Planar LMPP54 and LMPP74

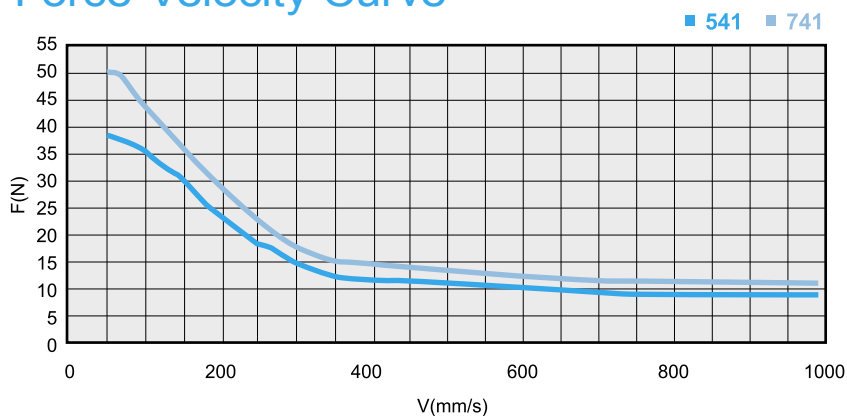


Spec	Type			LMPP 541/542	LMPP 741/742
	Item	Symbol	Unit		
* PERFORMANCE	Max. Thrust	T_m	N	38	50
	Holding Force	T_s	N	48	60
	Resolution	R_s	mm/stp	0.001~0.01	0.001~0.01
	Repeatability	R_p	mm	0.002	0.002
	Accuracy	A_c	mm	$\pm(0.015\sim0.04)$	$\pm(0.015\sim0.04)$
	Max. Vel.	V	m/s	1.0	1.0
	Max. Acc.	A	m/s^2	20	20
FORCER	Phase	Φ	Φ	2	2
	Current	I	A	3	3
	Mech. Pitch	P_t	mm	0.64/1.28	0.64/1.28
	Length	L_f	mm	138	154
	Width	W_f	mm	131	146
	Height	H_f	mm	19	19
	Air Gap	T_a	mm	0.015	0.015
	Air Pressure	P_a	kg/cm^2	3.0 ± 0.3	3.0 ± 0.3
	Air Flow	F_a	l/min	10	10
	Mass	M_f	kg	0.75	0.9
	Op. Temp.	T	$^{\circ}C$	0~50	0~50
	Fix. Distance	$A_f \times B_f$	mm \times mm	130×61.5	146×69
■ STATOR	Length	L_s	mm	350~1000	350~1000
	Width	W_s	mm	330~850	330~850
	Height	H_s	mm	50~100	50~100
	Mass	M_s	kg	27~180	27~180

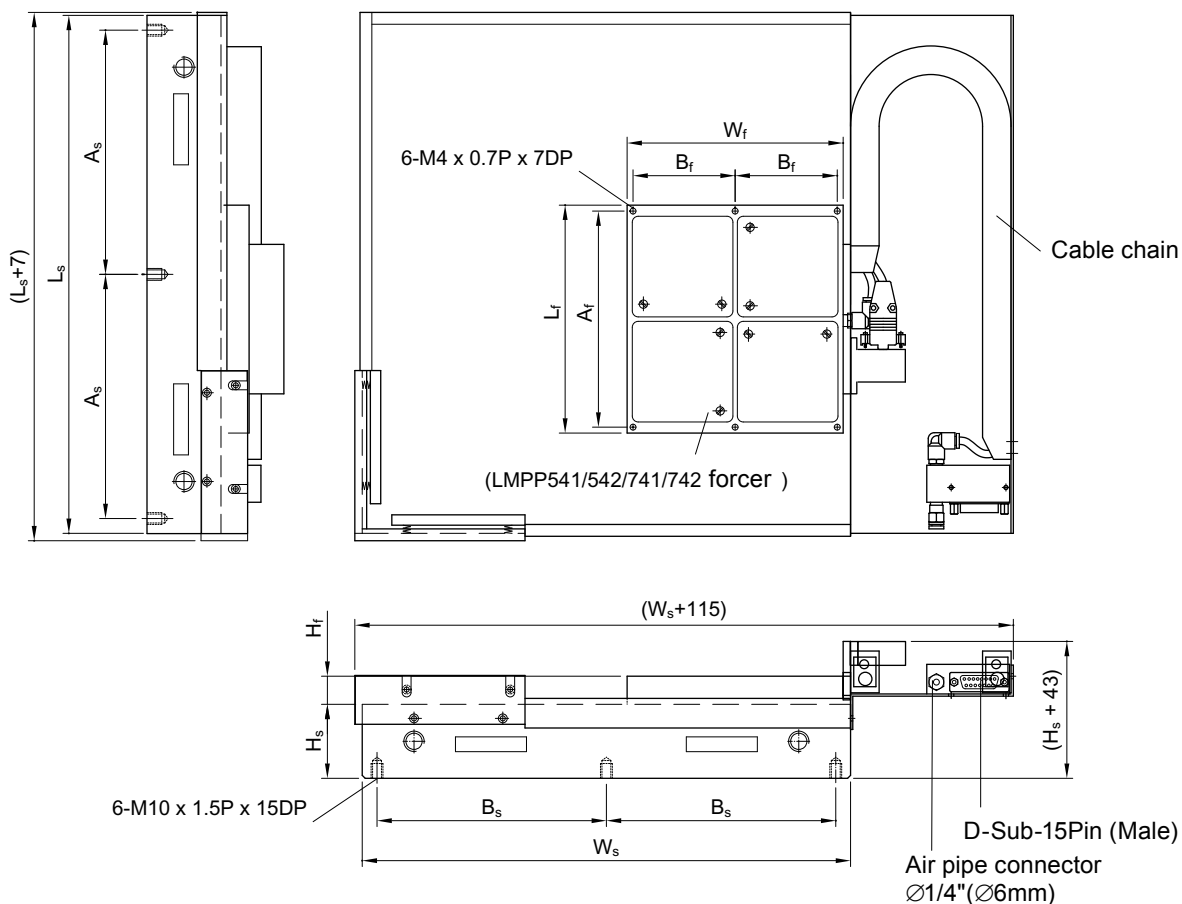
* The performance specifications may vary with different drivers and their setting, therefore, the listed values are for reference only. If higher performance is required, please contact with HIWIN or our authorized agents

■ Option: Home Sensor

LMPP Force-Velocity Curve



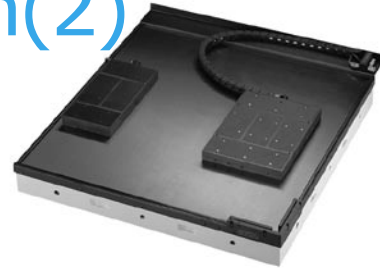
LMPP Dimensions



Stator Index	P1	P2	P3	P4	P5	P6	
Stator Size L_s (mm) x W_s (mm)	350x330	450x450	600x450	600x600	1000x600	850x850	
Max. Stroke (mm x mm)	LMPP541/542	175x155	275x270	425x270	425x420	825x420	675x670
(One forcer)		LMPP741/742	160x135	260x255	410x255	410x405	820x405
Stator Height H_s (mm)	50	50	70	70	100	120	
Stator Mass (kg)	27	36	52	66	120	250	
Fix. Distance A_s x B_s (mm x mm)	165x310	213x426	288x426	288x576	(318-324-318)x280	400x400	

1-2-6 LMPP Specification(2)

Planar LMPP58 and LMPP5C

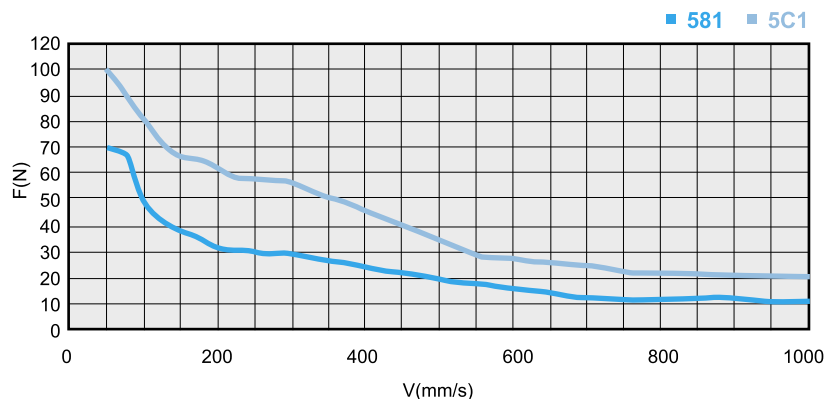


Spec		Type		LMPP 581/582	LMPP 5C1/5C2
	Item	Symbol	Unit		
* PERFORMANCE	Max. Thrust	T_m	N	70	105
	Holding Force	T_s	N	90	140
	Resolution	R_s	mm/stp	0.001~0.01	0.001~0.01
	Repeatability	R_p	mm	0.002	0.002
	Accuracy	A_c	mm	$\pm(0.015\sim0.04)$	$\pm(0.015\sim0.04)$
	Max. Vel.	V	m/s	1.0	1.0
	Max. Acc.	A	m/s^2	20	20
FORCER	Phase	Φ	Φ	2	2
	Current	I	A	3	3
	Mech. Pitch	P_t	mm	0.64/1.28	0.64/1.28
	Length	L_f	mm	240	240
	Width	W_f	mm	120	181
	Height	H_f	mm	25	25
	Air Gap	T_a	mm	0.015	0.015
	Air Pressure	P_a	kg/cm^2	3.0 ± 0.3	3.0 ± 0.3
	Air Flow	F_a	l/min	12	15
	Mass	M_f	kg	1.4	2.0
	Op. Temp.	T	$^{\circ}C$	0~50	0~50
	Fix. Distance	$A_f \times B_f$	mm \times mm	118 \times 52	164 \times 118
■ STATOR	Length	L_s	mm	350~1000	350~1000
	Width	W_s	mm	330~850	330~850
	Height	H_s	mm	50~100	50~100
	Mass	M_s	kg	27~180	27~180

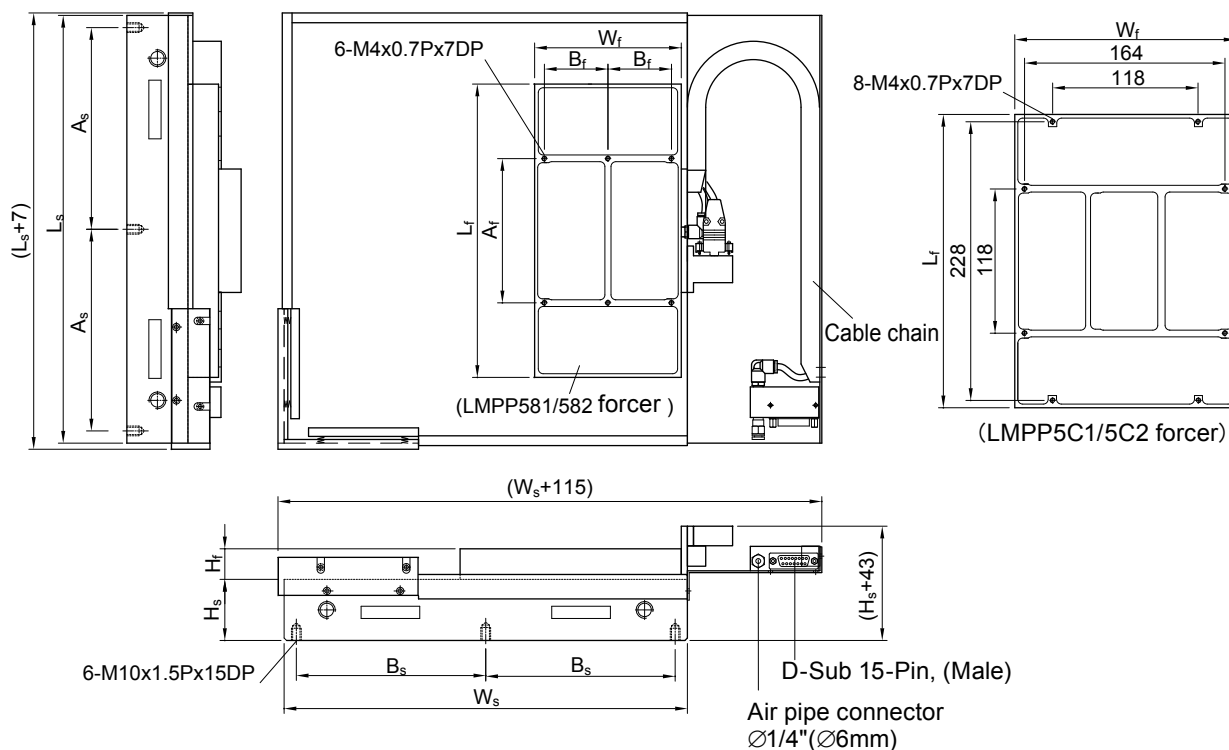
* The performance specifications may vary with different drivers and their setting, therefore, the listed values are for reference only. If higher performance is required, please contact with HIWIN or our authorized agents

■ Option: Home Sensor

• LMPP Force-Velocity Curve



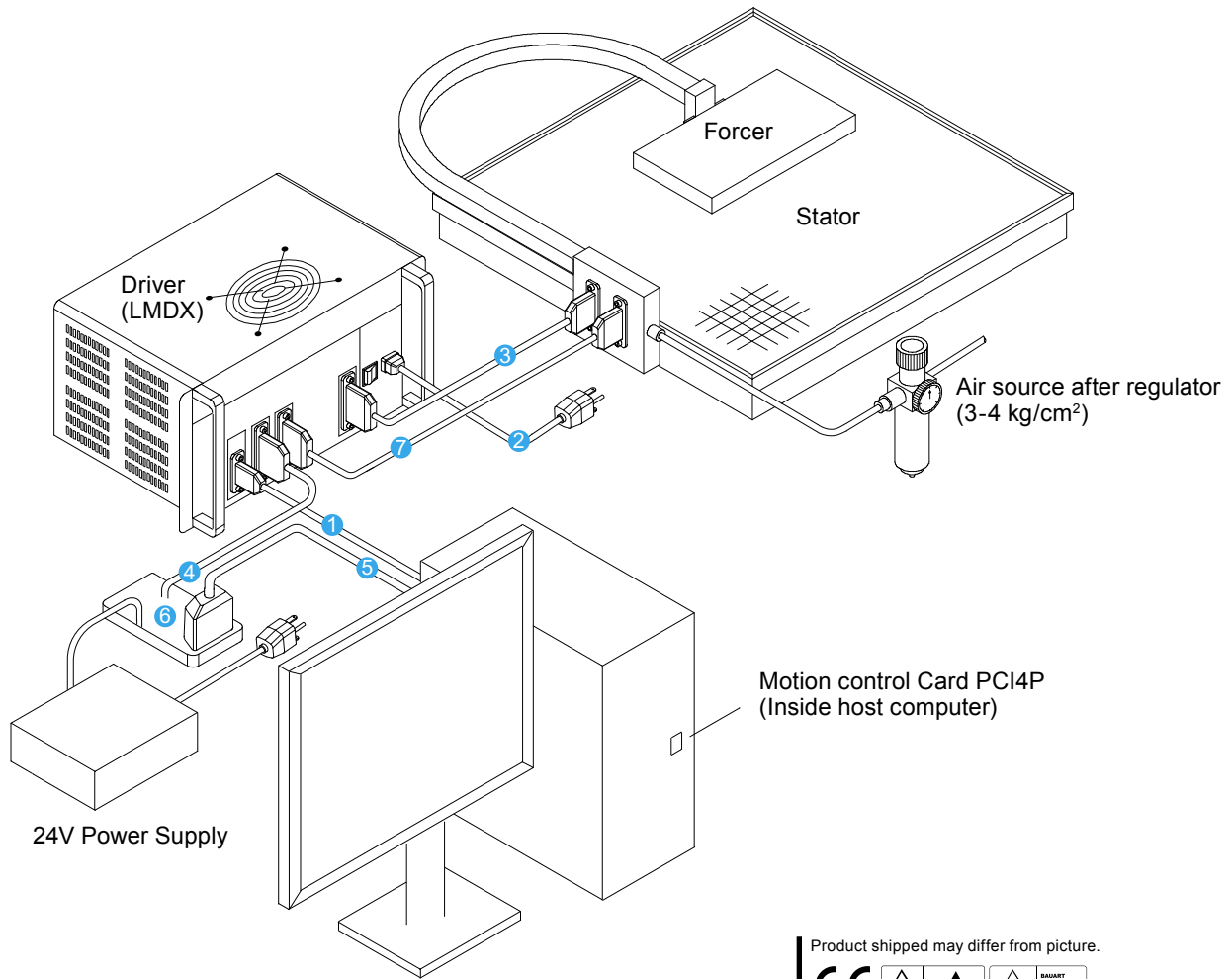
• LMPP Dimensions



Stator Index	P1	P2	P3	P4	P5	P6	
Stator Size L_s (mm) x W_s (mm)	350x330	450x450	600x450	600x600	1000x600	850x850	
Max. Stroke (mm x mm) (One forcer)	LMPP581/582	75x160	175x280	325x280	325x430	725x430	575x680
	LMPP5C1/5C2	75x100	175x220	325x220	325x370	725x370	575x620
Stator Height H_s (mm)	50	50	70	70	100	120	
Stator Mass (kg)	27	36	52	66	120	250	
Fix. Distance A_s x B_s (mm x mm)	165x310	213x426	288x426	288x576	(318-324-318)x280	400x400	

1-3 Linear Planar Servo Motor

1-3-1 System Configuration

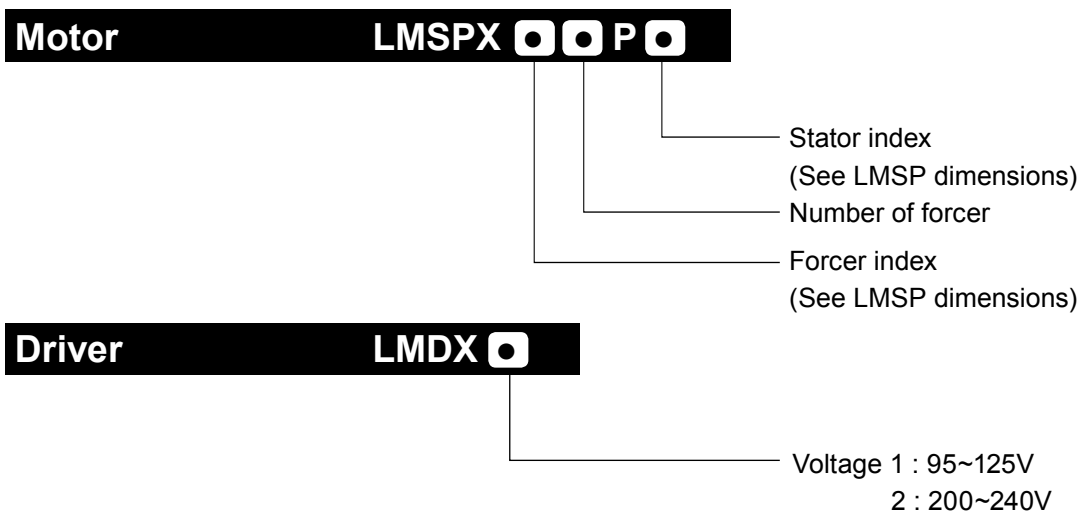


Product shipped may differ from picture.



- ① RS-232 Cable
- ② Driver power cable (LMACP20B / LMACP20F / LMACP20G)
- ③ Motor cable (LMACD20D)
- ④ Pulse Cable (driver end) (LMACK20H)
- ⑤ Pulse Cable (controller end) (LMACK20M)
- ⑥ Terminal Block (PCI4P-TB)
- ⑦ Encoder Cable (LMACE20C)

1-3-2 Part Numbers



1-3-3 LMSP Specification

Planar servo motor

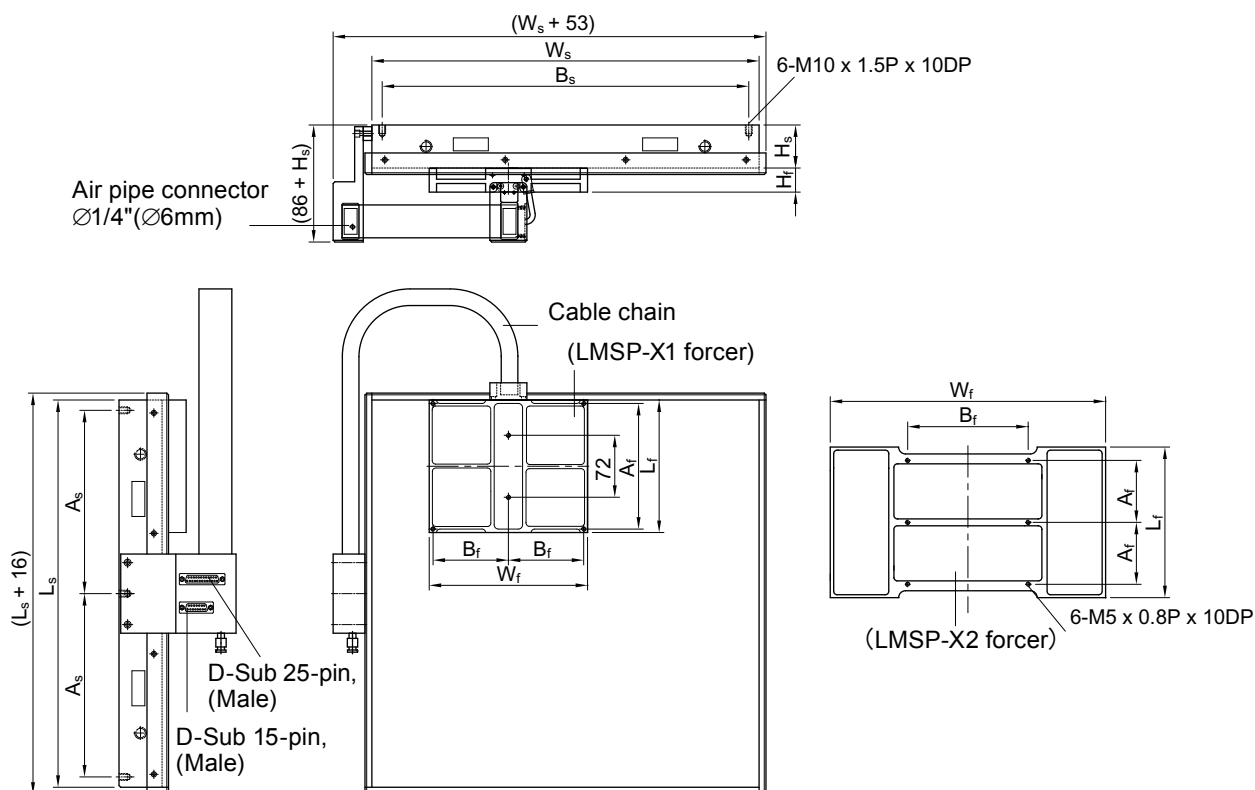
Features:

- Closed loop
- Auto alignment, homing
- Loose step detection



Spec	Type			LMSPX1	LMSPX2
	Item	Symbol	Unit		
PERFORMANCE	Max. Thrust	T_m	N	75	140
	Resolution	R_s	mm	0.001	0.001
	Unidirectional repeatability	R_p	mm	0.002	0.002
	Accuracy every 300 mm	A_c	mm	± 0.015	± 0.015
	Max. Vel.	V	m/s	0.9	0.8
	Max. Load	-	kg	14	28
FORCER	Length	L_f	mm	154	175
	Width	W_f	mm	184	320
	Height	H_f	mm	28	30
	Air Pressure	P_a	kg/cm ²	3-4	3-4
	Air Flow Rate	F_a	ℓ/min	6.4	11
	Mass	M_f	kg	1.8	3.7
	Fix. Distance	$A_f \times B_f$	mm × mm	146 × 87.5	72 × 140

● LMSP Dimensions



Stator Index		P1	P2	P3	P4	P5	P6
Stator Size L_s (mm) x W_s (mm)		350x330	450x450	600x450	600x600	1000x600	850x850
Max. Stroke (mm x mm) (One forcer)	LMSPX1	190x140	290x260	440x260	440x410	840x410	690x660
	LMSPX2		270x125	420x125	420x275	820x275	670x525
Stator Height H_s (mm)		50	50	70	70	100	120
Stator Mass (kg)		27	36	52	66	120	250
Fix. Distance A_s x B_s (mm x mm)		165x310	213x426	288x426	288x576	(318-324-318) x280	400x400
No. of fix. holes		6	6	6	6	10	9

2. Driver Series

2-1 Microstepping Drivers

LMDY3D

- LMDY3D is a microstepping motor driver that runs a two-phase stepping motor.
- LMDY3D operates directly from 100-240VAC power; no separate DC power supply or transformer is required.



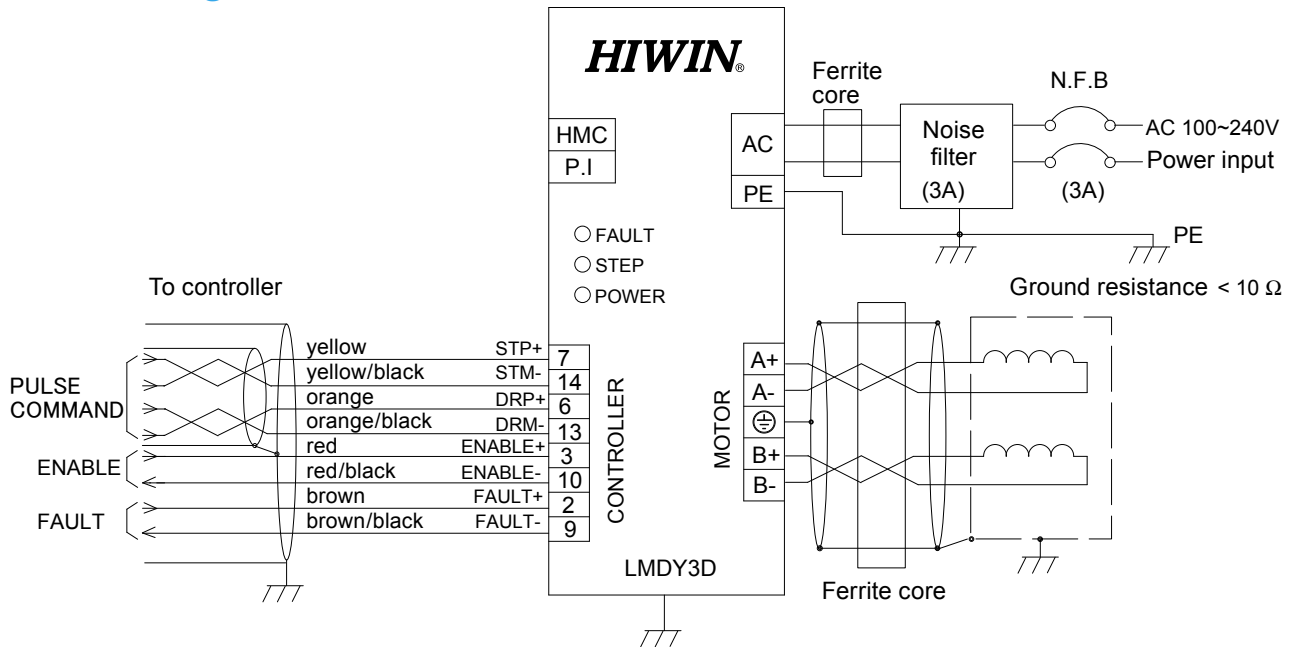
Product shipped may differ from picture.



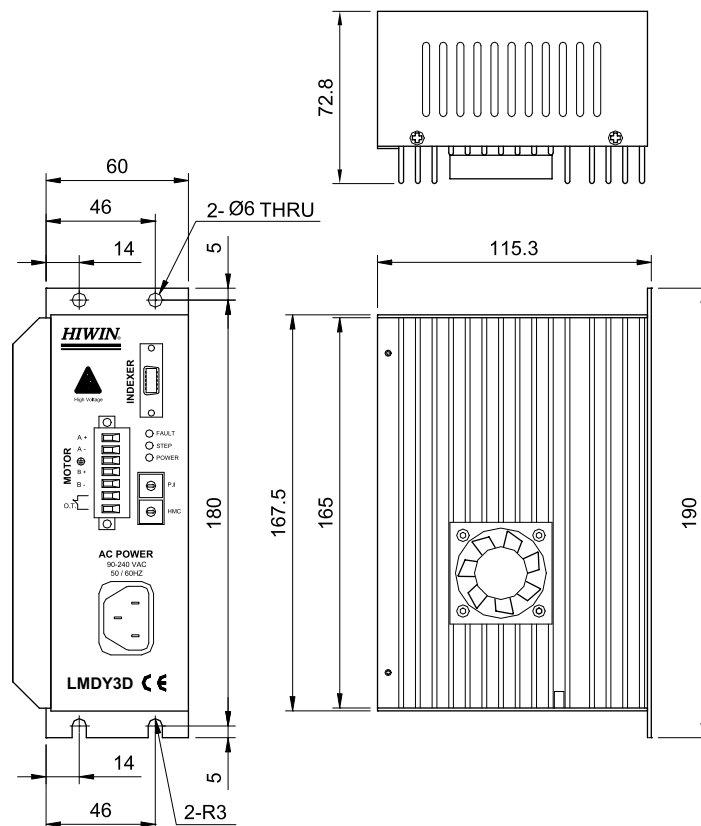
Specification	Unit	Description
Input voltage		100-240 VAC 50/60 Hz
Output current	A	1.5/3.0 (max)
Pulse format		STEP/DIR and CW/CCW
Resolution	µm/pulse	1, 2, 5, 10
LED indicator		Over current, over temperature
Weight	kg	1.95
Max. op. temperature	°C	60
Auto standby mode		Each time driver is turned on, current is supplied to motor and driver is ready for receiving pulses.
Power saving mode		This feature enables the driver to reduce the output current to 50% of the rated value after idle for 3 seconds.

** **CE** marked with EMC Directive 89/336/EEC and LVD Directive 73/23/EEC compliance.

• Wiring



• LMDY3D Dimensions



2-2 Servo Drivers

LMDS6/LMDS20

Product shipped may differ from picture.



The LMDS series drivers are designed to drive linear servomotors, such as iron-core linear motors (LMS), coreless linear motors (LMC), and linear stepping motors.

LMDS6/LMDS20 consists of two major components:

- A servo-control card, with a high performance floating-point DSP (Digital Signal Processor) TMS320C32, is capable of updating servo-loop cycle in 96 microseconds.
- A power amplifier board, with reliable power electronics, can output current of amplitude up to 6 Amps (LMDS6) and 20 Amps (LMDS20).

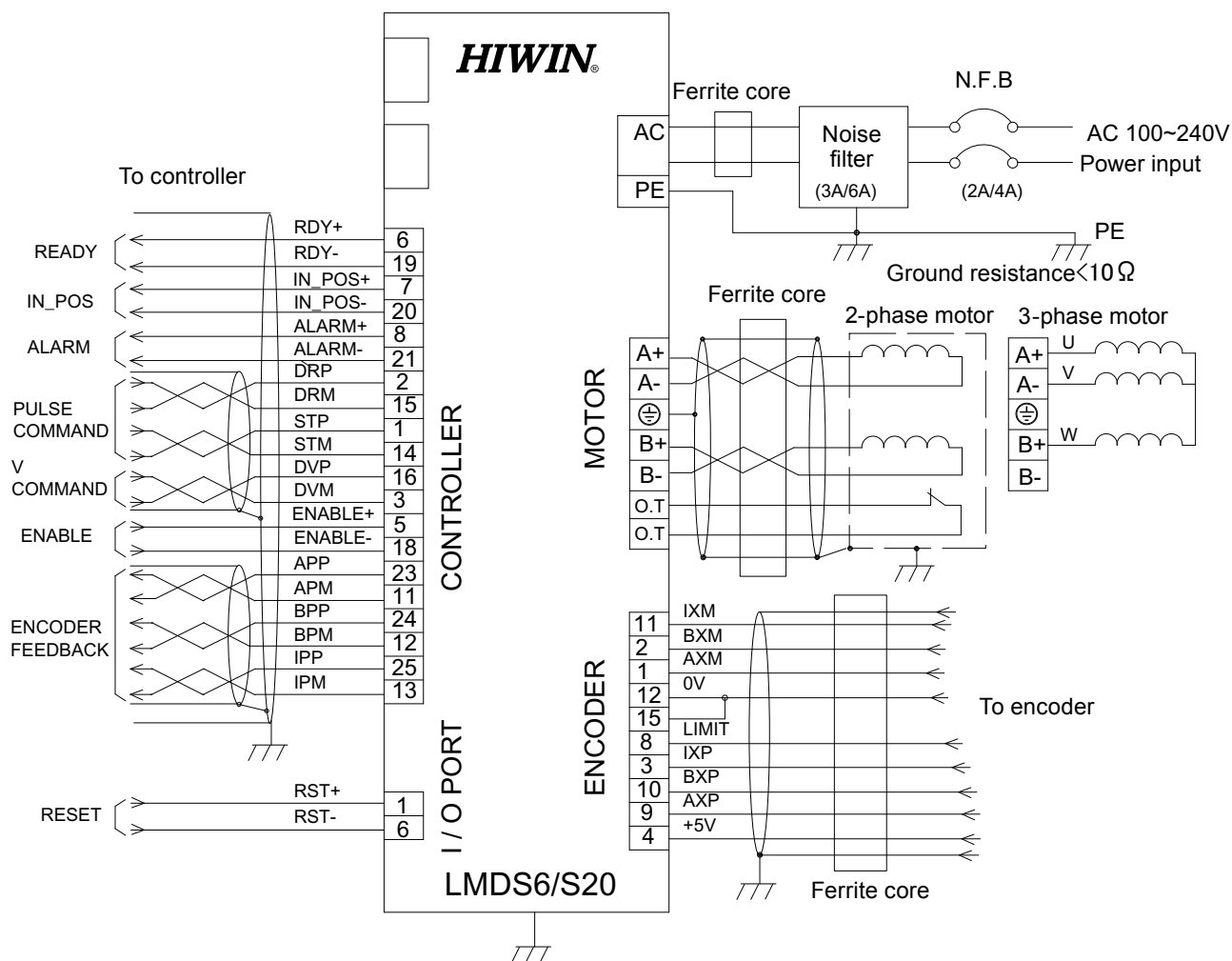
Features

- For three-phase linear motors
- Overheat protection
- Supports closed loop control with sin-cos encoder
- Adjustable parameter settings for optimal motor performance
- Sensorless detection of electrical angle of motor
- Supports two kinds of pulse format (STEP/DIR and CW/CCW)
- Stand-alone operation with embedded path generation

Specification	Unit	Description
Input voltage		100-240VAC 50/60 Hz
Output current	A	6 (S6); 20 (S20)
Pulse format		STEP/DIR and CW/CCW
Resolution	µm/pulse	Set by parameter (e.g. 1, 2, 5....)
LED indicator		Over temperature, fault
Weight	kg	S6: 3.2; S20: 4.52
Max. op. temperature	°C	50
Parameter setting		Thru RS-232

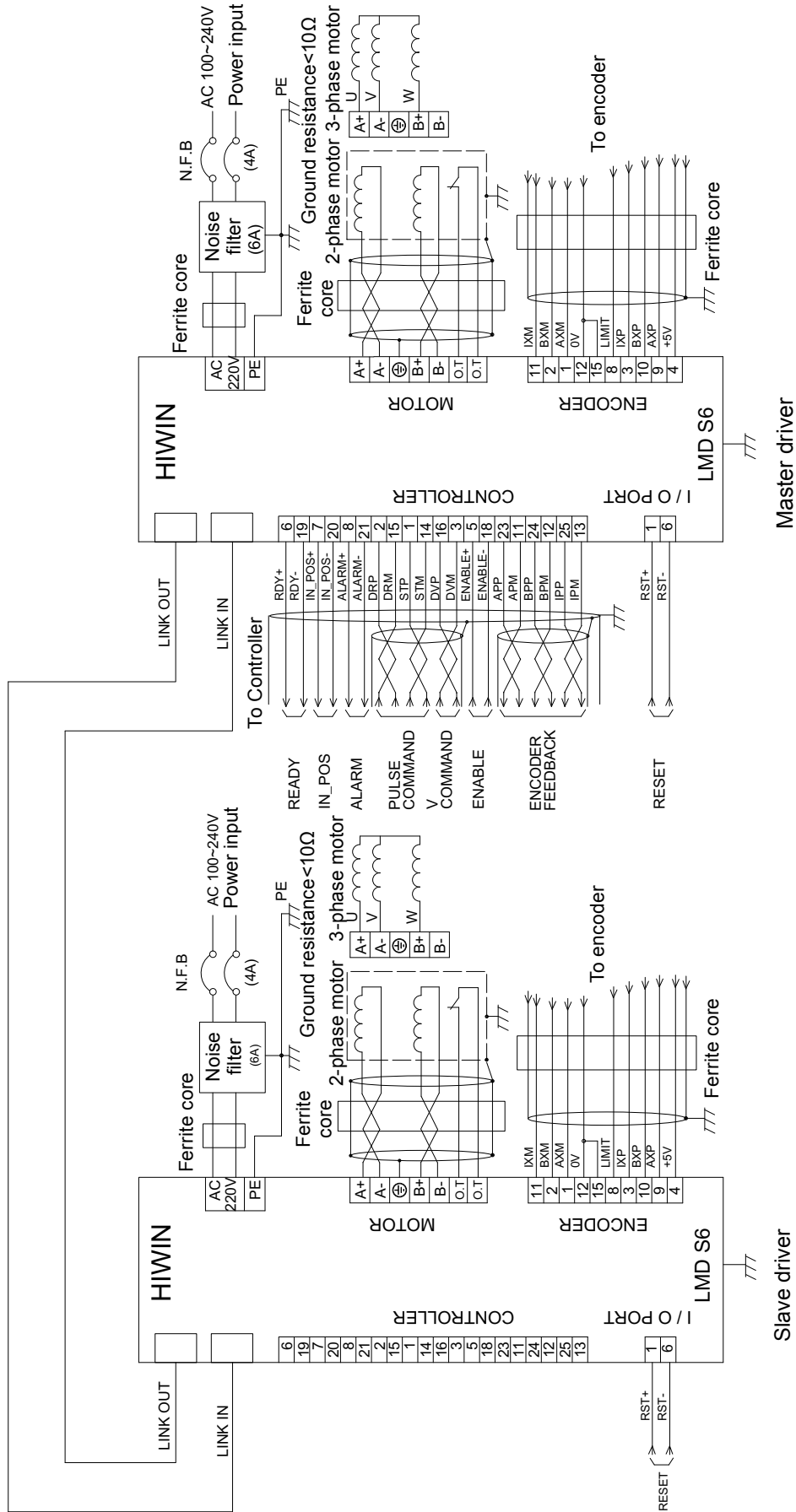
* **CE** marked with EMC Directive 89/336/EEC and LVD Directive 73/23/EEC compliance.

● Single axis wiring

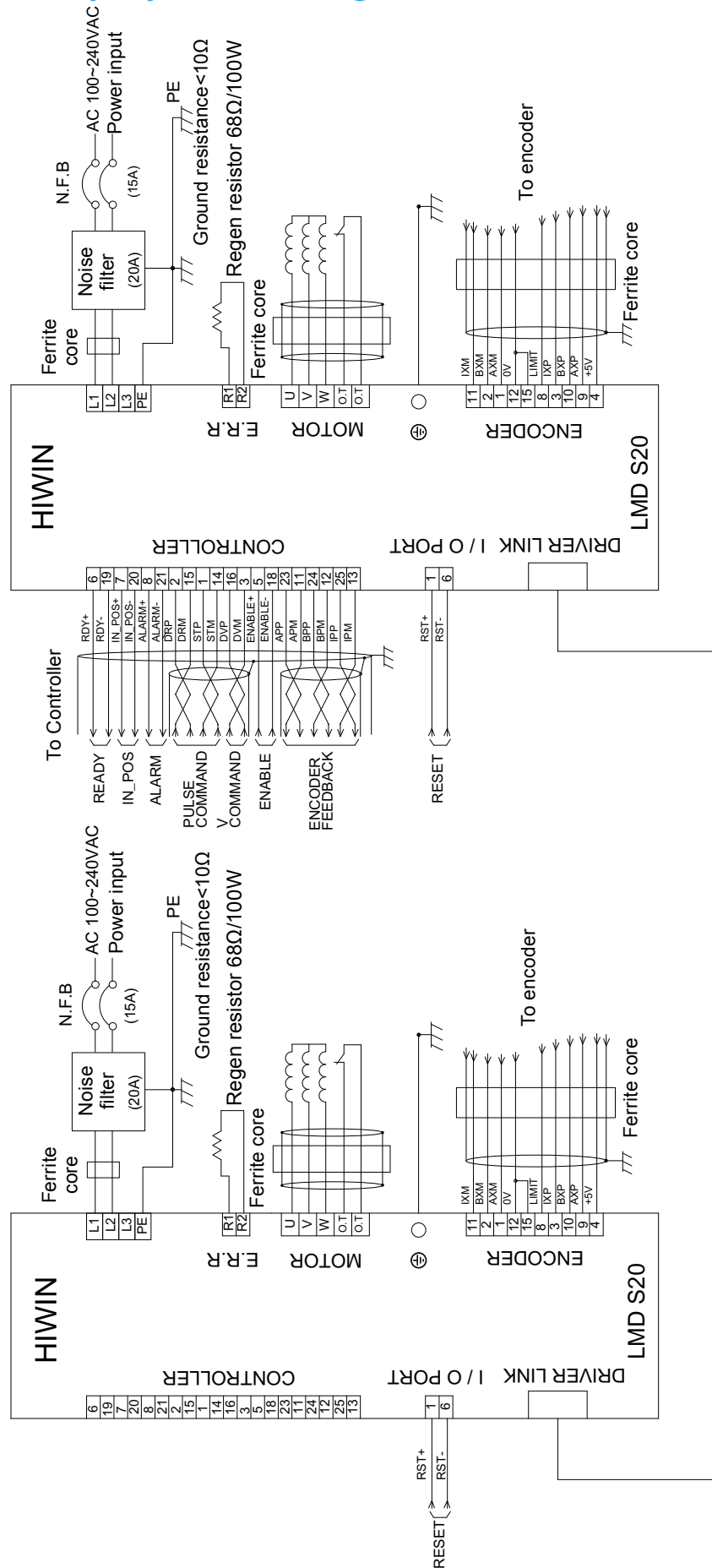


* LMDS20 connects only with 3-phase motor

● LMD S6 Gantry System Wiring



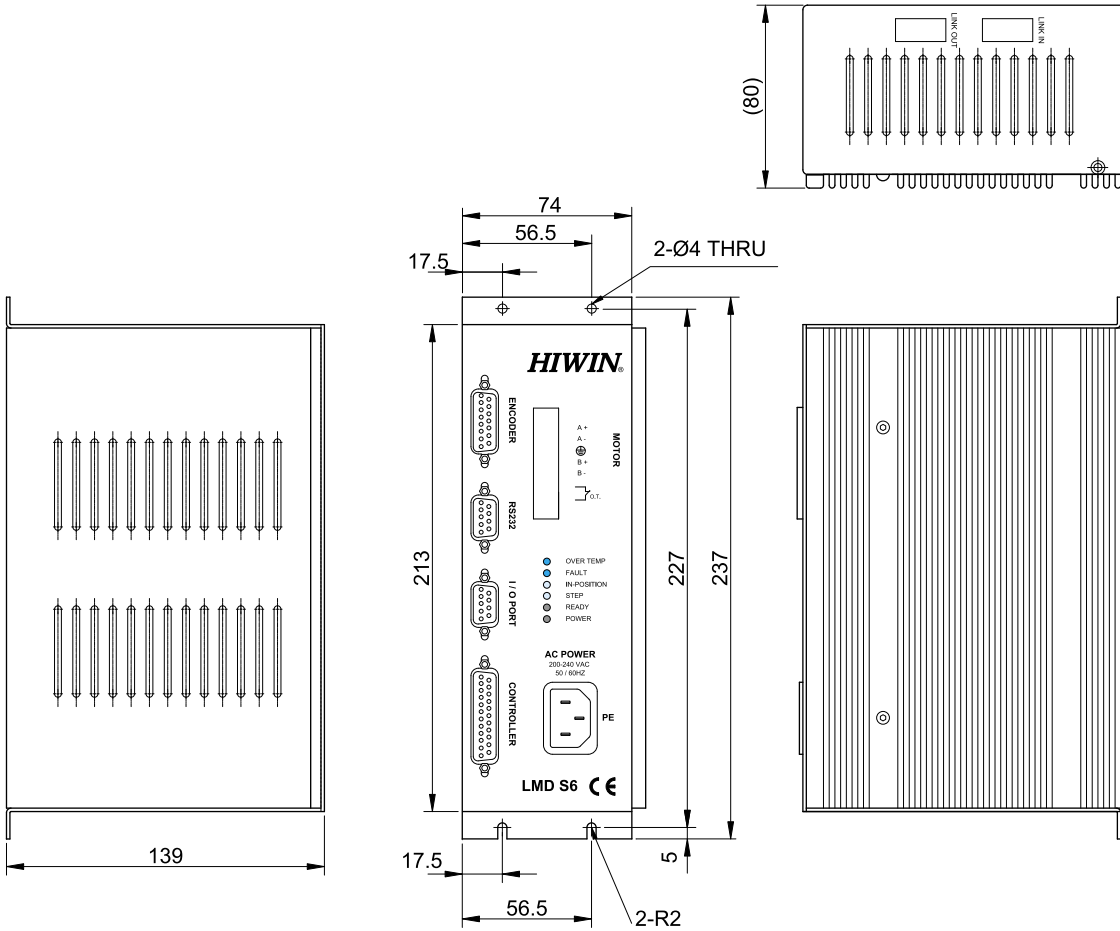
● LMDS20 Gantry System Wiring



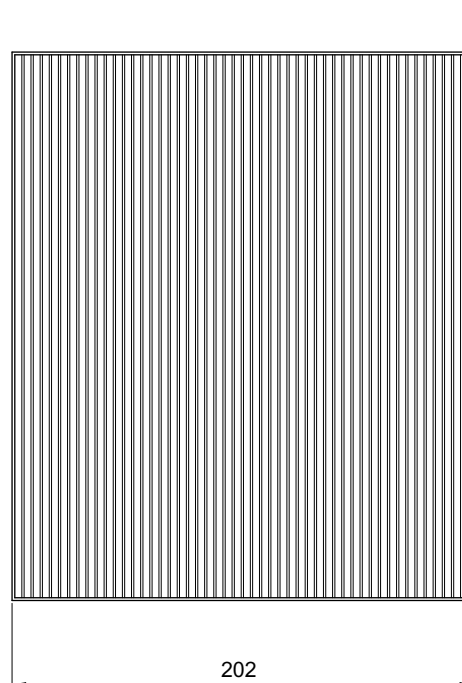
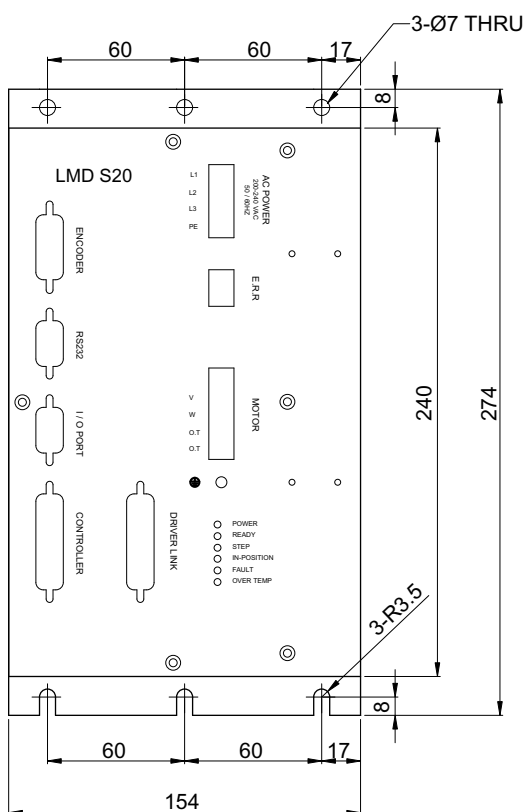
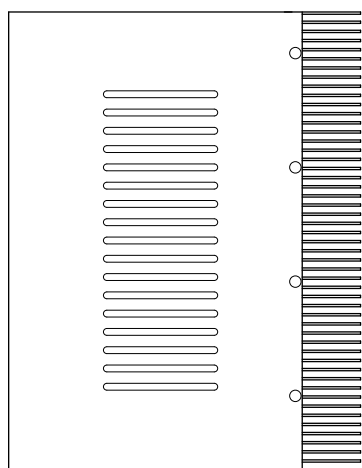
Master driver

Slave driver

● LMD S6 Dimensions



● LMD S20 Dimensions



2-3

Driver for Linear Planar Servo Motor (LMDX)

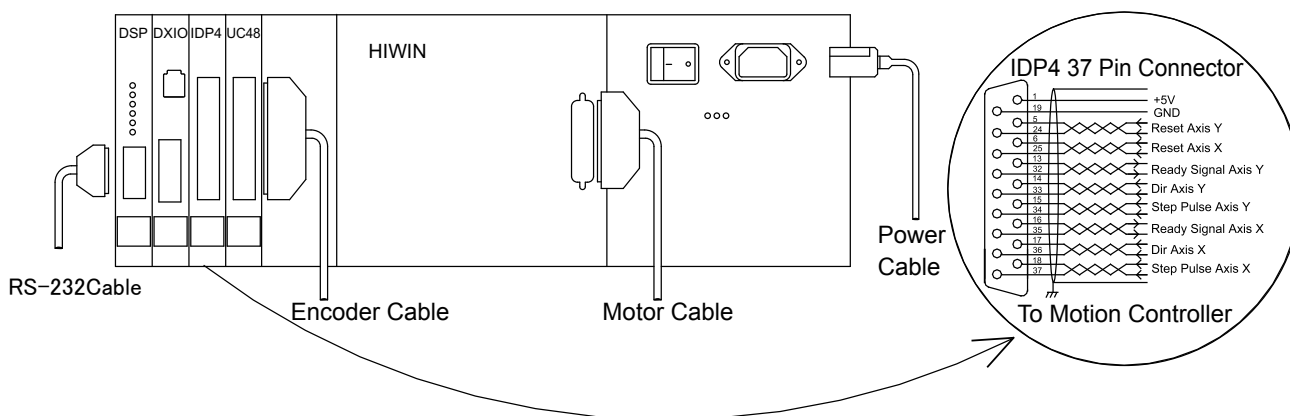
LMDX1: Input Voltage 95~125V**LMDX2: Input Voltage 200~240V**

Product shipped may differ from picture.



Specification		Unit	Description
Power input	Voltage	V _{AC}	95~125 (LMDX1) 200~240 (LMDX2)
	Frequency	Hz	50 / 60
	Power	VA	500 (max.)
Output Current		A	3 (max.)
Interface	Parameter setting: RS-232		9600 Baud, 8 data bits, 2 stop bits, odd parity
	Digital I/O Signal		DXIO card: 8 inputs: include HOME and RESET 6 outputs: include IN-POSITION, ALARM, SVON DXIO16 card (option): 16 inputs, 16 outputs
	Pulse command	Pulse	STEP/DIR
Resolution		μm/Pulse	1 (set by parameter)
Weight		kg	13.3
Max. op. temperature		°C	50

LMDX Wiring

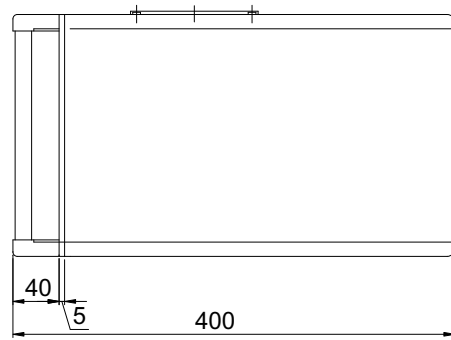
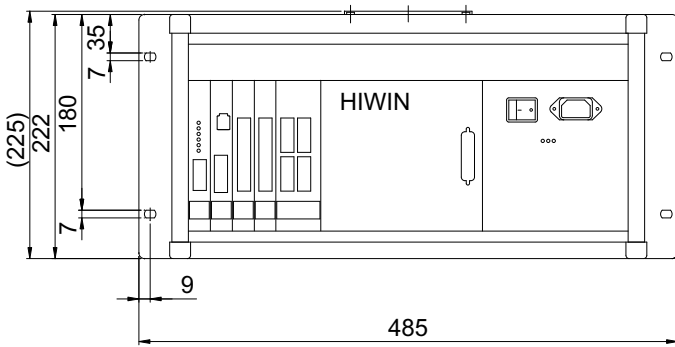
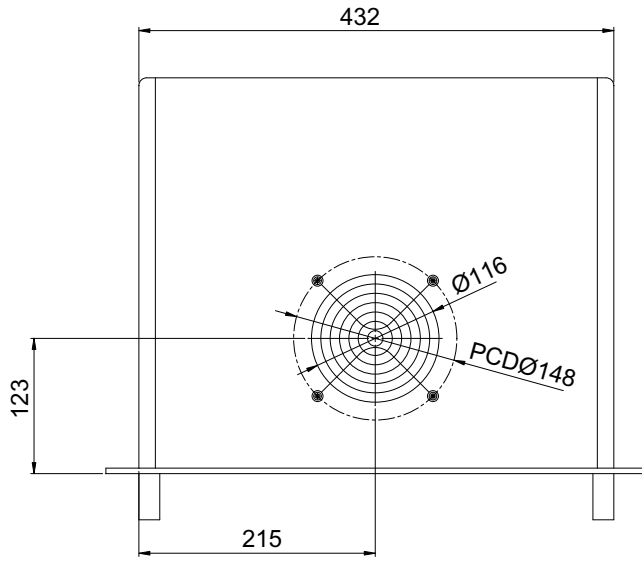


Connection to Controller

Pin Assignment of LMDX IDP4 (Male)
 (Applicable cable LMACK20H: D-sub 37-pin connector)

Signal	Pin No.	Function	Description	
+5V	01	Signal voltage supply	+5V voltage output 1A	
GND	19	Signal ground		
SXP	18	Step X +	STEP/DIR pulse command only 	
SXM	37	Step X -		
DXP	17	Dir X+		
DXM	36	Dir X-		
RXP	06	Reset X+		
RXM	25	Reset X-		
SYP	15	Step Y +		
SYM	34	Step Y -		
DYP	14	Dir Y +		
DYM	33	Dir Y-		
RYP	05	Reset Y+		
RYM	24	Reset Y-		
GXP	16	Ready X+		
GXM	35	Ready X-		
GYP	13	Ready Y+		
GYM	32	Ready Y-		

● LMDX Dimensions

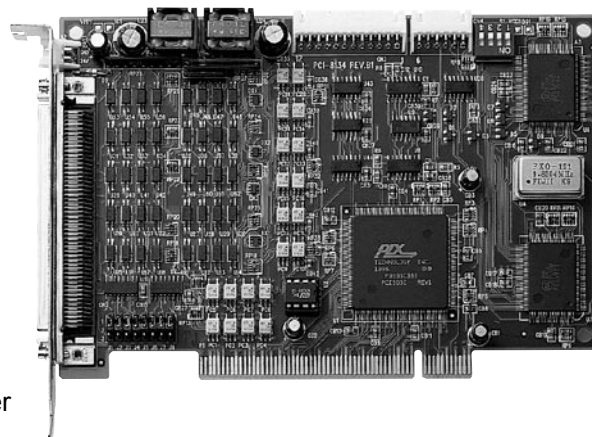


3. Motion Control Card

PCI4P

Features:

- PCI bus, plug and play
- Pulse train generation for 4 axes
- Supports STEP/DIR, CW/CCW pulse format
- 3-axis linear interpolation
- 2-axis circular interpolation
- Supports T-curve, S-curve velocity profile
- 4 x 32-bit counter for digital incremental encoder
- DLL library for Windows
- Homing-, limit- and jog-functions
- Supports stepping, AC-servo and linear motors
- MotionMaker™ user interface for quick start
- Differential pulse output reduces noise interference



Introduction:

HIWIN PCI4P motion control card uses DDA (Digital Differential Analyzer) method to send incremental pulses to motor drivers. It supports up to 4-axis positioning. There is also interpolation functionality between axes. It also reads signals from digital encoders into dedicated counters. It is suitable for motion control with stepping motors and pulse type servo motors.

For each axis, there are home signals and limit signals as inputs; and there are servo-on signal as outputs, besides it includes one general output (PRDY) and one emergency stop input (ESTOP).

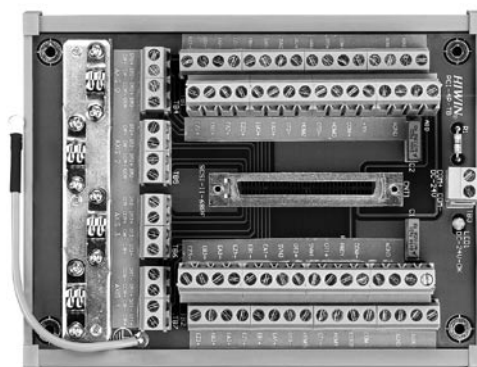
S-curve velocity profile provides possibility to reduce mechanical vibration and quicker settling time for positioning.

MCCL library supports VC++/VB programming on Windows 98/2000/XP and it provides linear, arc, circular etc. motion functions.

The terminal block PCI4P-TB is provided for easy connection of pulses and related I/O signals.

Power Requirements:

- Slot power supply (input):
+5V DC±5%, 900mA max. from PCI bus in PC
- External power supply (input):
+24V DC±5%, 500mA max., user prepares.



PCI4P-TB

4. Customized Solutions

Beside the standard linear motors shown in the catalog, customized solutions can be specially made in short lead time by integratingforcer modules with different types of guiding devices.

- Gantry



- X-Y Stage



* For your customized solutions, please contact HIWIN or authorized agents.

5. Accessories

#	Name	Part No.	Description (equipment/connector)	Length (m)	Dia. (mm)
1	RS-232C cable	LMACR20A	Driver/D-sub 9-pin (Female) PC RS-232 port/D-sub 9-pin (Female)	2	6
2	Driver power cable	LMACP20B	Driver (Y3D, S6 Ver6B and DX)/Plug EN 60320 C13 Power outlet/Plug NEMA 5-15P, 100~120V	2	6.5
		LMACP20H	Driver(LMDS6Ver8A) / DIN-Terminal Power outlet/Plug NEMA 5-15P, 100~120V		
		LMACP20F	Driver (Y3D, S6 and DX)/ Plug EN 60320 C13 Power outlet/Plug CEE (7)VII, 200~240V		
		LMACP20G	Driver (Y3D, S6 and DX)/ Plug EN 60320 C13 Power outlet/Flying leads, 100~240V		
3	Motor cable for single-axis stepping motor	LMACS20B	Driver (Y3D)/DIN-terminal Motor/D-sub 9-pin (Female)	2	8
	Motor cable for planar stepping motor	LMACD20B	Driver (Y3D)/DIN-terminal (2 axes) Motor/D-sub 15-pin (Female)	2	10
	Motor cable for planar servo motor	LMACD20D	Driver (DX)/D-sub 25-pin (Male) LMSP Motor/D-sub 25-pin (Female)	2	15
4	Driver-end pulse cable	LMACK20S	Driver (Y3D)/SCSI 14-pin (Male)	2	6
		LMACK20G	Driver (S6, S20)/D-sub 25-pin (Male) PCI-4P-TB or controller/flying leads		
		LMACK20H	Driver (DX)/D-sub 37-pin (Male)		
5	Controller-end pulse cable	LMACK20M	PCI4P/SCSI 68-pin (Male) PCI4P-TB/SCSI 68-pin (Male)	2	8
		LMACK20Q	Driver/Flying leads		
6	Terminal block	PCI4P-TB	68-pin terminal block for PCI4P motion control card	N/A	N/A
7	Encoder cable	LMACE20C	Driver (DX)/D-sub 37-pin (Male) LMSP motor/D-sub 15-pin (Female)	2	8
8	Heat dissipation plate	LMAW37	Water-cooling plate for LMS37	N/A	N/A
		LMAW47	Water-cooling plate for LMS47		
9	Digital hall sensor module	LMAHC	Pole detection module for LMC	N/A	N/A
		LMAHS	Pole detection module for LMS		
10	Link in/out cable	LMACK02K	For synchronous control with LMDS6	0.2	10 pin Flat cable
		LMACK05R	For synchronous control with LMDS20	0.5	8

6. Linear Motor Inquiry Form

Date:

Company name		Contact person:	
Tel:	Fax:	Title:	
Load(kg)/Moment of inertia(kg · m ²)		Notes:	
Acceleration (m/s ²)/(rad/s ²)			
Max. speed (mm/s) /(rad/s)			
Stroke (mm)			
Accuracy (mm)/(deg)			
Repeatability (mm)/(deg)			
Timing chart (bottom, right corner)	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Vertical movement	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Multiple forcer	<input type="checkbox"/> Yes <input type="checkbox"/> No Number : _____		
Driver voltage			
Pulse format	<input type="checkbox"/> CW/CCW <input type="checkbox"/> STEP/DIR		
Voltage command	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Need PC-based motion controller	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Application	<input type="checkbox"/> Point to point <input type="checkbox"/> Scan		
Operational Environment			
Special measurement requirement			
Budget			
Quantity			

The information below is to be filled out by HIWIN or authorized agents.

Recommended specification:

Manager: _____ Engineer: _____ Salesperson: _____

